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UNSOUNDNESS OF MIND

BY

Sir Thomas S. CLOUSTON, M.D., LL.D., F.R.S.E., 1840-1915,

FORMERLY LECTURER ON MENTAL DISEASES IN THE UNIVERSITY OF EDINBURGH; PHYSICIAN-SUPERINTENDENT OF THE ROYAL EDINBURGH MENTAL HOSPITAL; AND PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS, EDINBURGH

WITH FOURTEEN ILLUSTRATIONS

Dr. Joseph Catton

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PREFACE

THERE are certain medical matters of the gravest importance which urgently claim the attention and appreciation, not only of the medical man, but also of the intelligent layman." Unsoundness of mind, its relationships and its social results, not only have a profound importance but have a special interest of their own. The vagueness of some of its problems, and the odium with which ignorance and prejudice have surrounded it, are additional reasons why attempts should be made to bring it more into the light. It is commonly a skeleton in the closet, which always has a bad moral effect on mankind. Specialism in medicine has come to stay, but with some persons it still has an evil repute. This means that the public should, as soon as possible, know more about it. I have always held that medical specialists owe a duty to the public as well as to science and their profession. A part of that duty consists in enlightening the public on their special problems, so far as this is rightly possible. Secrecy and vagueness always tend to quackery aud suspicion. The great aim of modern medicine being the prevention of disease, it is clear that a general diffusion of the knowledge through which only prevention can be brought about will tend to further that aim. I have attached a wide

THIS BOOK BELONGS TO

meaning to the term "Unsoundness of Mind," so that it may cover most of that vast region, psychological, sociological, and pathological, that is outside the *mens sana in corpore sano*. But to attempt such a task as I set myself was soon to find out its great difficulties and to realize how impossible it is for anyone to accomplish it quite satisfactorily in the present state of our knowledge. To do so implies such a wide and varied knowledge, such a discriminative power of analysis of human nature in its infinitely diverse phases, and such an exercise of sound judgment in distinguishing between the normal and the abnormal in man's speech and conduct, that few men possess the necessary qualifications. The normal and the abnormal, the healthy and the diseased shade so delicately into each other that a line of demarcation is not always possible to fix. We do not yet know a reliable test between soundness and unsoundness of mind, different as the one is from the other when each is seen in a typical form. Yet I cannot but think that it must make for the ultimate sanity of mankind to discuss the problem in such a way that it can in some measure be understood by the "intelligent layman."

January, 1911

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UNSOUNDNESS OF MIND

CHAPTER I

INTRODUCTORY

MEDICAL authors, when writing treatises on mental diseases and defects for the use of medical men and students of medicine have always found it a difficult matter to define and limit the subject. The titles they have chosen for their books show this sufficiently. "Madness," "Mental Derangement," "Insanity," "Lunacy," "Psychological Medicine," "The Pathology of Mind," "Mental Diseases," "Mental Affections," "Psychology, Normal and Morbid," "Psychiatry," "Mind and its Disorders," are some of the titles used. Most of those books do not fully or systematically treat of the mental defects which arise from arrestment and disease of the brain before birth or soon after it, which are usually discussed by a different set of authors, under the terms "Idiocy," "Mental Affections of Children," "Imbecility," "Mental Deficiency," "Amentia," and "Feeble-mindedness," though the theme is essentially the same in these two sets of books. No one has ever been able satisfactorily to define "Insanity" or "Imbecility," either from the medical or the legal point of view. The scope of many of the recent

books on mental disease and mental deficiency, especially those of foreign authors, has so widened that some of them begin with what are really treatises on the anatomy, physiology, and pathology of the human brain, with, often, a chapter on psychology. Few medical subjects have so enlarged their fields within the past thirty years as that which we now call "Psychiatry," or the study of mental disorders and defects. A glance at one of the most recently published treatises on that subject by Lugaro, the brilliant Italian Professor of Neuropathy and Psychiatry in the University of Modena, fully demonstrates that extension of scope.[1]

It may well seem to those best acquainted with this subject, and its recent developments, that an attempt to write a book on it, chiefly for popular use, would be a hopeless undertaking. Indeed, this was the view I took myself when I was first asked to do so and declined the work. My late friend, Dr. George R. Wilson, at my suggestion, undertook the work, but his lamented death stopped its completion when much of it was done. The subject is very technical and does not readily lend itself to popular treatment. Its many phases and lesser varieties are so liable to be misunderstood, and its graver aspects have been so parodied in general literature, that any popular exposition of it might be well thought rash or even dangerous, and sure to lend itself to misconception or quackery. The ignorance of the true nature of mental disorders and defects is, however, so great, the misconceptions about it are so gross, and the need of some general popular enlightenment is so clamant, that I have been emboldened to try my hand on this treatise. Probably the chief reason which weighed with me was my experience for many years as the head of a large mental hospital, in having, as an official

[1] *Modern Problems in Psychiatry*, by Ernesto Lugaro. Translated by David Orr, M.D., T. R. E. Row, M.D. With a Foreword by T. S. Clouston, M.D., LL.D., University Press, Manchester, 1909.

duty, to make an annual report to my directors and the public.[1] In those reports I tried to put facts and conclusions in relation to my work and experience before them which I thought would be interesting and useful to the public—in short, I endeavoured to "educate my masters." I have always believed and said that specialists in all subjects that have a human interest and importance have a duty to their fellow-men, not only to do their work as well as they can, but to bring about enlightenment in regard to any matter falling within their experience which concerns human health and happiness. I found that my annual reports were usually well received by the press, were often discussed intelligently by the public, and were sometimes quoted as throwing some light on certain sociological and medical problems.

The whole subject of mental disease and everything pertaining to it is, or was lately, repellent to most men and women. There is apt to be a strong prejudice against the unfortunate subjects of this malady or defect. This is the cause of needless misery, and often leads to conduct that is cruel. I used to set myself in my reports to combat those prejudices by stating facts, and putting forward considerations, long known to the medical profession, but as yet faintly realized by the general public. I tried my best thereby to remove the reproach of mental affliction. A disease that should only have evoked pity had, through ignorance, become a disgrace to be ashamed of. Truth and Science, I am convinced, will gradually dispel such adverse feelings, and thereby mankind will become on the whole happier.

I propose to use in this book the words "Unsoundness of Mind" to cover all known mental disorders and defects, great and small, of whatever sort, and from whatever cause. Even the initial mental symptoms, the various conditions of the borderland, and the cases

[1] *Royal Edinburgh Asylum Annual Reports*, 1873–1907.

of complete idiocy, will be referred to under this title. Scientifically and psychologically the area covered is extremely wide, but they all have in common a departure from normal brain action. It is most desirable in my opinion for the intelligent public to take a larger and more humane view of mental disease and defect. If they did so, early symptoms would often be recognized and treated, and rational efforts at prevention would be carried out.

Mental unsoundness and defect being a subject of extraordinary importance, not alone to doctors, but from the point of view of sociology, hygiene, and psychology, not to mention history, biography, and morals, I shall utterly fail in the object of this book if I do not in some degree bring this out. Holmes said, "The scientific study of man is the most difficult of all branches of knowledge," but if the most difficult it is also the most interesting. "I am a man, nothing that is human but what concerns me," said Terence. Defects of mind concern most men and most families, while they deeply affect society and the State. The Royal Commission on the "Feeble-minded" and mentally disordered which had been for four years taking evidence on this subject, in its report issued in 1908 estimated that there are at least 350,000 persons of those two classes in the United Kingdom, those representing the mentally helpless, non-producing, dependent, and diseased element in the body politic. I should add other 50,000 to the 350,000, and feel certain I was then well within the mark. Those have as first cousins an army of "defectives" of other kinds—cripples, criminals, ne'er-do-wells, drunkards, cranks, impracticables, unemployables, tramps, weak-minded prostitutes, and persons unable to hold their own in life or to resist common temptations. Those give society more trouble than even the 400,000. It comes to this, that a large part of our "submerged tenth" lacks brain grit to cope with the conditions of modern

life, especially in our large cities. Society has evolved faster than brain in their cases, and they have therefore become the "unfit" that will not be likely to survive.

One of the most difficult problems modern science has before it at the present day is to indicate to the guides and rulers of our people, as well as to the public itself, how mental disease and defects can be distinguished from vice and inefficiency, and how they are related to each other. Should certain persons enjoy full civil rights? or should they be segregated and prevented from propagating their kind? and should they be punished if they commit crime? With those and other questions to solve it is manifest that all citizens who are interested should have the opportunity of studying some of the salient facts of mental unsoundness and defect in a form that they can understand. The first thing to be done is to get rid of the old wrong ideas, the second is to acquire correct scientific views. Both must go together before preventive and curative measures can be devised.

CHAPTER II

WHAT UNSOUNDNESS OF MIND IS—HOW TO DISCOVER ITS PRESENCE—WHAT IT IS NOT

THERE are certain general facts and considerations which must be frequently referred to when the problem of mental unsoundness presents itself. Those help to throw light on its nature and symptoms; they take it out of that vague obscurity and air of repulsion which are so apt to surround it; they put it alongside of other diseases; they make it more interesting to even non-medical persons; they also, I think, help to mitigate the pain of it in the case of those who have suffered, and of their relations.

The first and by far the most important of those considerations is that unsoundness of mind is a disease, or natural defect, and should always be so regarded. There is nothing practical to be made of it by mental analysis alone, without regard to its bodily symptoms and accompaniments. It should therefore be looked on as fevers, or rheumatism, or consumption are looked at, and all the previous ideas as to its being an absolutely different thing from disease in general should be discarded. Thus its former reproach, its terror, its scorn, its stigma and its shame may be resolutely fought down. Charity, sympathy, efforts at relief and helpfulness should take the place of those remnants of ignorance and the dark ages.

The human brain consists of such a multiplicity and complexity of tissues, and those are so infinitely delicate

that they naturally suggest a corresponding multiplicity and delicacy of symptoms when it becomes diseased. Our knowledge of the structure and physiology of the brain being as yet very far indeed from being perfect, it is no wonder that our knowledge of disturbances in its highest parts and functions should be markedly incomplete. We know definitely, however, that, as in the normal brain working, so in its abnormal action there must be localization and specialized phenomena, those always having a relation to the working of the whole as a going piece of machinery.

Looking to the whole body and the working of its various organs, we shall see that every one of them has a local centre in the brain which controls and regulates its working by means of the nerves of communication between them. Mutual effects, good and bad, are constantly taking place. The brain may put the stomach out of order or the stomach may upset the brain. The brain, as first pointed out by Hughlings-Jackson, that great pioneer in nerve study, is divided into higher and lower levels, more important and less important constituents and functions, like a regiment with its colonel, its majors, its captains, sergeants, and privates, its commissariat, and its fighting forces, each of which cannot get on without the other, a disturbance of one affecting more or less all of them. There are differences in quality, importance, and in degree of the forms of mental unsoundness which result from those physiological levels in the brain. There is a tendency to spread in many forms of mental disease, from the higher to the lower levels, and *vice versa*.

We must endeavour clearly to distinguish by as close observation as we can apply the differences between those effects in any case of unsoundness of mind which reveal themselves through the patient's subjective feelings, and those which we find out by our own observation, and can prove to exist independently of

the patient's feelings or complaints altogether. When a person labouring under unsoundness of mind tells you that he is suffering from the effects of electricity, which somebody is applying to him through an unseen battery, or that he hears voices, which you know do not exist as a fact, when he says he feels perfectly miserable, or when he says he is abnormally happy, you do not come to any definite conclusion about him, except that his mind is affected; but how it is so affected, what the disease is and means, and what is to be its treatment and management, you do not determine until you have further examined the patient, especially as to his bodily symptoms and condition. His temperature must always be taken, his heart, his liver, his stomach examined, so far as that is possible. The condition of his blood has latterly attracted great and deserved attention. Above all, the state of his brain and nerves must be looked into. We thus interpret and can often explain the patient's subjective sensations and his description of them. In the case of the things we see ourselves, they have to be brought into relationship with the subjective symptoms the patient complains of if we can. The department of Medicine called Neurology, or the study of nervous diseases, gives us great help by its methods and its results. I always used to urge my assistants to study in the National Hospital for Epilepsy and Paralysis before they took to mental disease as a speciality.

Then we have always to keep in mind that mental power and modes of mental action are different at different ages, in different temperaments, among different races, and in persons of different education, so that allowance for all these things must be made in coming to conclusions about any case of possible mental unsoundness.

The instincts and the appetites of human beings, which belong equally to mind and body, must never be forgotten in any examination of a person of possibly

unsound mind, for they are very apt indeed to be disturbed. The chief of those instincts and appetites are the love of life, with the organic fear of death, that primary instinct of all living beings, without which life would soon become extinguished in the world. The loss or the reversion of this, which so often happens in unsoundness of mind, often results in suicidal feelings and attempts. Reproduction comes next, through sex and sexual feelings. That dominates the life and the conduct of life of mankind nearly as much as hunger and food. Perversions of this in extraordinary ways, chiefly affecting the emotions, are extremely common in unsoundness of mind. The love of offspring, that basal and strongest of all the loves, I have seen so affected that a mother, when she had the opportunity of taking her young child in her arms, preferred to eat some cakes and fruit. The social instincts of normal man affect his life, his emotions, and his actions profoundly. In many forms of mental disease they are so disturbed that violent causeless hatreds, equally violent attachments, and still more frequently the profoundest indifference, are met with. Long continued mental disease is especially distinguished by an unsociableness which often prevents a large number of patients in a ward of a mental hospital from even speaking to each other. This results from a paralysis or a perversion of the social instincts. Even the appetites for food and drink may be so changed or lost that persons suffering from unsoundness of mind will not feel hunger or thirst, and will not take any means whatever to provide themselves with those necessities. This does not always result from any active purpose to starve themselves, but from a suspension of appetite. The brain and its nerves to the palate, nose, or stomach may be so disordered in their workings that sweet food will taste bitter, or the person may be incapable of distinguishing bitter from sweet, or when suffering from indigestion such patients may

accuse the providers of his food of intentions to poison him, this resulting from the misrepresentation of real feelings through the reasoning power being impaired.

Many of the great laws of action of the human body and brain are so apt to be disordered in mental unsoundness, that they have to come within the range of inquiry in our examination of patients. There is a law of periodicity of action, for instance, not only in all life, but almost in all nature. The heart beats rhythmically, the lungs act periodically, sleep comes at regular intervals, all nervous action is essentially periodic or rhythmic, and the temperature differs at different times of the day. This periodicity is constantly interfered with or accentuated in unsoundness of mind.

Special dangers have to be provided for in cases of mental unsoundness, over and above those that occur in ordinary disease. Special precautions have to be taken, special hygienic rules have to be observed, special nursing has to be provided, a special mental attitude has to be cultivated on the part of the relatives, doctors, and nurses. It has constantly to be kept in mind that, contrary to what is the case in most other forms of disease, the majority of the patients do not know they are ill, while a few of them—the depressed—exaggerate their illnesses, and imagine that they suffer from many complaints that do not exist.

There is an organic unity through the brain in the human being which unites body and mind, which brings every organ and every function of the body into relationship with every other, this implying that every scientifically minded physician never stops at the symptoms the patient complains of, or those that he first discovers, but examines into every function of the body and sees whether it is sound or unsound in action. The further question he has to solve is whether the disturbances discovered are primary or secondary. Many of the disturbances that are really secondary to

the mental unsoundness, and the effect of it, have to be taken into account and treated because of their influence on this organic unity. Unsoundness or defect of mind scientifically implies the idea of such disturbance of the great organic attributes or unities. A man's conduct in life is largely determined by this organic unity, and his conduct is the first thing to be altered in most cases, and is, in fact, the best practical test of sanity, as insisted on by Mercier. But yet in a few cases a man may be unsound in mind whose conduct comes up to the sane standard.

What Mental Unsoundness is not.—It is here necessary to say a word about abnormal mental states which are different from, and should not be confused with, unsoundness of mind. The writers on mental disease and defect are often accused of throwing so wide a net and of being so inclusive in their definitions of what constitutes unsoundness of mind, that the more thoughtless of the public think that we believe that "all men are mad." This is an unscientific, a hurtful, and an untrue idea. If seriously believed in it would weaken the idea of human responsibility to law on which society rests, and would tend also to impair the moral sense of mankind. It would be used as a plea for mere folly and an excuse for crime. Lawlessness, criminality, foolish thought and action, until proved to be the result of brain disease or brain defect, are not and should not be said to be unsoundness of mind. When human beings with normal power of emotion and control are violently excited by unusual ideas or stimuli, such as religious revivals in certain forms, political upheavals like the French Revolution, or, it may be, by social and domestic catastrophes, they may act and think in every way like persons really of unsound mind; but notwithstanding this, it would be an improper use of the term to apply it to them. Their actions may be irrational, but their minds and brains are not necessarily unsound in a

scientific sense. There is a very large margin of mental action and human conduct that may be eccentric and unusual, but yet does not constitute unsoundness of mind. The same actions may be done by two persons, in the one case prompted by unsoundness of mind and in the other by sane reason, or under emotional excitement, or as the result of false but sane beliefs. I saw lately a woman whose daughter was on board a vessel that was long overdue, and the suspense of mind she was in caused many of the symptoms of acute melancholia with hallucinations of sight. She thought she saw when she awoke from sleep her daughter drowning, yet she was not technically of unsound mind. There are many conceivable circumstances which would prompt a sane man to commit suicide, though as a matter of fact most suicides are committed as the result of mental unsoundness. The sanest of the Stoics said, "It is in your power, remember, to take leave of life." "My cabin smokes, so I take leave of it." There are circumstances under which a sane man might kill his wife or children or friends. The conduct and speech of Diogenes were those of a man of unsound mind, yet for two thousand years he has stood among the philosophers. Limited societies and even great nations have for short periods "gone mad" in their conduct, but they were not "of unsound mind" scientifically. By suggestion and by a certain mental and nervous "infection" a man or a community, especially among certain races, will, under unusual stimuli, exhibit conduct far away from normal reason and self-control. Nervous and mental excitement of a certain degree is catching and tends to spread. The ideas and often the conduct of genius have been at times so far away from the accepted standard of the time that they have frequently been put down to unsoundness of mind, yet they were proofs of the very highest wisdom. Jesus Christ and Saint Paul were both accused by their contemporaries

by being insane: "He hath a devil, and is mad." "And when His friends heard of it they went out to lay hold on Him, for they said He is beside Himself," "Much learning doth make Thee mad." Disease or defect in the brain working in a scientific sense must be the test, and the only test, of unsoundness of mind, and if that does not exist, then sanity and responsibility must be assumed.

CHAPTER III

SCIENCES AND STUDIES THAT HAVE A RELATION TO UNSOUNDNESS OF MIND.

THE co-relation of all the sciences is a comparatively new idea; and the fact that physiology, psychology, pathology, and bacteriology would be, taken together, explanatory of many of the problems of unsoundness of mind, was not realized till within the past few years. At one time the study of metaphysics was thought to be helpful in the study of diseased or defective mind, but that has been found not to be the case; we use its terms only. It is impossible to have any correct ideas about unsound mental working without some knowledge of the physiology of the brain. Unsoundness of brain working is frequently equivalent to unsoundness of mind working. It is true we may have errors of movement, errors of sensation, errors of reflex action, and errors of brain nutrition, without any very decided mental unsoundness, but even in such brain disorders the chances are always in favour of the mental working not being quite normal. There is a solidarity of function in the brain through which, when any part suffers, the other parts suffer with it. It is the case that the special sensations of sight and hearing are apt to be affected in many cases of mental unsoundness. Hallucinations—that is, subjective sensations of the special senses, without any external stimuli causing them—are indeed the keynotes of many forms of mental disease. We could not explain this fact

without reference to the physiology of the brain. General medicine, too, comes in everywhere. In the treatment of mental disease there is no principle that we hold to so much as the restoration of the general health of body and the tone and working of the brain as a whole. The modern science of experimental psychology has already thrown light on many problems and is destined in the future to elucidate many more. Some of its methods and instruments are now in use in the diagnosis of mental disease. It has been demonstrated to us that sensation is capable of accurate measurement, so putting us a step forward in the scientific measurement of the diseased mental processes. It has demonstrated that the reflexes of the brain are liable to be affected in many forms of mental disease. It has shown the exact extent of loss of co-ordination in mind and muscular action in many cases of mental unsoundness. Kraepelin and Macdougall, by the methods of exact experiment, have demonstrated to us the degrees in which certain brain poisons, such as alcohol, affect the purely intellectual working of the brain in conjunction with the muscular movements. We are getting more and more dependent on the terms used by the modern neurologists and psychologists, in addition to those of the metaphysicians, to express accurately our meaning when we have to describe the mental symptoms of an attack of unsoundness, or the condition of congenitally weak-minded persons. There is no faculty more frequently deranged in unsoundness of mind than the will and the mental inhibition and desire—those fundamental processes through which conduct is chiefly affected—we always find those abnormal when the mind is unsound. Affectiveness, emotion, and feeling in their innumerable forms are disturbed in nearly every case. Aphasia, amnesia, attention, strain, apathy, suggestion, illusion, are terms we constantly use in psychiatry. The old metaphysicians held that there was an essential unity of the mind, the

modern physiological psychologist puts it that there is an essential unity of working between brain organization and everything that can be described as mental.

The study of heredity finds its most important and also its most difficult problems, in mental unsoundness. I shall constantly have to refer to this as I go on. Education in any scientific sense deals with problems that may have a close relation to many of those seen in mental defect. An acquaintance with such exhaustive studies of what may properly be called human nature at its various periods of life, such as Stanley Hall's *Adolescence* are almost essential if we want to understand the mental defects and the mental diseases of the various periods of the life of man. Much light is thrown on the modern science of sociology by a scientific acquaintance with brain and mental defects. The great departments of biography and history would be incomplete without a knowledge of the way in which morbid or defective mind sometimes affected the lives of those who made history. The late Dr. Ireland's studies in this department cannot be neglected by the future historians and biographers of Nero, Joan of Arc, Louis II. of Bavaria, Ivan the Terrible, Paul of Russia, Torquato Tasso, and Comte. Modern biographers do not now ignore the part which mental disturbances and perversions have played in history, and are beginning rightly to lay stress on the mental and bodily characters of the ancestry of their subjects.

There is no more important question in morals and in law and government than that of the responsibility of human beings to the laws of God and man. Has a man the innate power of obeying law? Can he so regulate his conduct as to fulfil its obligations? Has he the capacity to resist temptations, suggestions, and impulses to law breaking? Does he possess, as a brain quality, that amount of mental inhibition which makes it easy to do right and avoid wrong? Has

he within him, whether innately or formed by education, that unique quality which we call conscience? In other words, does he *feel* that one course of conduct is right and another wrong as distinguished from *knowing* it? Can he be held fully responsible for his actions by society and the magistrate? Or is there some innate weakness in him which modifies or abolishes that responsibility? All these questions have some relation to mental unsoundness. Judges, and in this they represent society, hold in theory that all men know the laws of their country, even as expressed in the latest Acts of Parliament, and that they are punishable for any breach of those statutes. There has been a long-standing difference of opinion between the judges and the doctors in regard to the amount of mental unsoundness which ought to absolve a man from full punishment of any crime he may commit. I believe I state the truth when I say that in modern times, as science has advanced, and as the facts of mental pathology have been more carefully studied, the more advanced and thoughtful of our judges and legislators have been gradually coming round to the opinion that there is a large class of men so constituted in brain and mind that they are not fit to enjoy, with advantage to themselves and society, full political and civil rights, and cannot be held fully responsible, so that society must be protected rather by preventive and segregative than by punitive measures. Modern medical psychology has proved clearly that conscience, the sense of right and wrong, and the power to obey law in the face of certain temptations, does not exist in many human beings, or exists in such a minor degree that they cannot be justly held fully responsible. Conscience, in short, is largely a brain quality, which is partly innate, and partly developed by education and training. As Maudsley says, "One may safely affirm that an unremitting instillation of moral principles, from the appearance of his first tooth

onwards to the loss of all his teeth by a natural decay, would not avail to make a moral being of the congenital moral imbecile; safely suspect, too, that no moral training would ever have transmuted the moral nature of Judas Iscariot into that of Jesus the son of Sirach, still less into that of Jesus of Nazareth." There are rising among us scientists of such an optimistic frame of mind that they believe that this organic lack of law-abidingness can be eradicated in future generations by practising the rules of the new science of "Eugenics." That science aims at even greater benefits to humanity, for Sir F. Galton, its great apostle, makes the sanguine assertion that "it would be quite practicable to produce a highly gifted race of men by judicious marriage during several successive generations." A knowledge of unsoundness of mind and especially its heredity must constitute an essential part of eugenics. This whole field of the lack and paralysis of moral sense may be, in the strictly scientific sense, brought under the domain of unsoundness of mind.

The social reformer will not be likely to be successful except he has a reasonable knowledge of unsoundness of mind in certain persons that seem to need reformation very badly, whose intellects are acute even to cunning, but whose moral sense and will-power are weak. Those who study human nature for baser ends come to know its psychological weaknesses well. The deceiver, the cheat, and the impostor instinctively fix on the weak and the unsound of mind for the purposes of extortion and knavery of all sorts. Such harpies are drawn to mental weakness like carrion crows to a carcase. It seems a large claim, but a relationship, more or less close, undoubtedly exists between psychiatry and brain anatomy, nerve physiology, pathology, bacteriology, general medicine, hygiene, psychology, sociology, eugenics, jurisprudence, and ethics. Soundness of mind is the master-key to all human effort and progress.

CHAPTER IV

ELEVEN ORDERS OF BRAIN

BEFORE we come to classify the unsound of mind, perhaps we need to classify mankind as a whole from the brain and mental point of view. Innumerable classifications of mankind have been made, founded on the various ways in which men are looked at, and on the point of view of the classifier. From the medico-psychological point of view several classifications are possible. Adding to this aspect the sociological and political points of view, I would venture to assort mankind into eleven orders. In making my classification of the technically sane, *i.e.*, the first six classes, I have had before me Galton's[1] and Mr. Charles Booth's classifications.

The first, and the most obvious order, is the average man. Fortunately he covers by far the largest amount of space. A glance at the accompanying diagram will show that he occupies four-fifths of the whole mass of humanity (Fig. I. A. I.). He does most of the manual labour, of the trading, manufacturing, and fighting of life. He pays most of the taxes, and runs most of the smaller administrations. He is necessarily conservative and wanting in initiative in the philosophical sense, because his action is mostly founded on the experience of his forefathers. He is Carlyle's "fool," a name no doubt given to him when the seer was in an unusually dyspeptic mood. The

[1] *Eugenics*, by Sir F. Galton, F.R.S.

religionists try to make him a saint, the moralists endeavour to reduce the guile and original sin in him to a minimum, the politicians try to convert him to their transitory ideals. The artists labour to create in him beauty and harmony, and the scientists try to teach him the laws of nature and that he should order his life according to them, but fortunately, perhaps, for the world's happiness, he continues to do his daily work in his own way, and if of a good race slowly advances, but never makes a leap forward in any direction. He seldom suffers from cataclysms. He is the master of the human situation and nowadays is coming to know it.

The second order of man is the one exhibiting marked talent all round, who has initiative, much surplus energy, and to whom original ideas on practical subjects sometimes occur (Fig. I. A. II.). He has more insight, more initiative, more cunning, and more force than the average man. He forms the class of social and political leaders, the professors, the head of all big "concerns," and he tries to lead the average man by the nose in the paths he has laid out. We may put him down as forming the eleventh part of the mass of men. He corresponds almost exactly to Charles Booth's Class "T."

The third order is a small one and extremely helpful to humanity, but he often fails in life so far as his own happiness and success are concerned (Fig. I. A. III.). He is the lesser genius, full of originality and ideas, apt to be impracticable, and very contemptuous of number two order, who very often makes his fortune out of the new ideas which number three originates. As an artist his work is always above the commonplace, and sometimes he attains the highest rank when the inspiration is on him. As an author he always begins in life with poetry, but makes his mark in fiction and biography. As a scientist of the higher sort he has done much good work. He is apt to be unhappy, contemptuous, impatient, and

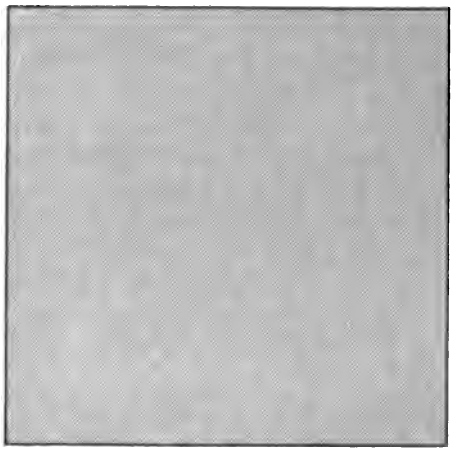
cynical in disposition. His "scorn of fools" is keen. He is the born critic, and is always attempting to put the world straight. He is cocksure about everything. In his brain working this type of man is showing the beginnings of instability. Those men are usually of what we now call the "neurotic" type and constitution, and take to city life as ducks to water. They feel more strongly than they reason, and mostly act on their instincts and feelings. They move quickly. Many of them have large but not perfectly balanced heads, high palates, and other signs of nervousness, and even degeneracy. When ill their neurotic instability colours all their symptoms. When of the female sex they are over-sensitive, enthusiastic, the promoters of "causes," apt to overdo their strength so that they fall into times of nervous prostration. The "minor poets" all come from this class. Such men are perhaps one to between four and five hundred of the whole. They roughly correspond to Galton's Class "V and above."

The fourth class is the least numerous of all (Fig. I. A. IV.). It is that of the genius—the god amongst men. His work and his thought have been the redemption or the curse of the race, as the case may be. He occurs rarely and his advent is always unexpected. Among his relations and his kindred there are apt to be a disproportionate number of cranks, imbeciles, and mentally unsound persons. It commonly takes several generations for the world to understand and appreciate him. He used often to be put to death. He is a "sport" or a "variation" according to the evolutionist. He is sometimes entirely sane, like Shakespeare and Darwin, exhibiting that quality in its ideal, but often enough he has a dash of brain instability. Only a few of his class occur in each generation.

Those four classes together form the independent, responsible, punishable persons who constitute the self-sustaining world of men. We now come to the

FIG. I.—THE ELEVEN ORDERS OF BRAIN.

A. *The Legally "Sound" in Mind.*



	Numbers in the British Empire.
I. The Average Man.	35,963,900
II. Marked Talent all Round.	4,000,000
III. The Lesser Genius.	100,000
IV. The Genius.	A few in a Generation.
V. The Crank, the Markedly Eccentric, the Anarchist.	100,000
VI. The Markedly Under-Average, the Tramp, the Vagrant, the "Submerged Tenth," the Natural Pauper.	4,000,000

FIG. 1.—THE ELEVEN ORDERS OF BRAIN (*continued*).

B. *The "Unsound" in Mind.*

		Numbers in the British Empire.
VII. Those liable to, or who have had, attacks of ordinary curable Mental Unsoundness. The General Paralytics, &c.		100,000
VIII. The Adolescents who are liable through bad heredity to pass into Mental Unsoundness ending in "Secondary Dementia," or who are now in that condition.		100,000
IX. The Epileptic.		100,000
X. The Congenitally Feeble-minded.		125,000
XI. The Congenitally Imbecile and the Idiot.		40,000

sixth and seventh classes, who are more or less dependent and only partially responsible, who are severely handicapped by their organization, and who need the special care, sympathy, and help of their stronger fellow-men, though not technically unsound in mind. They are dead-weights and dangers to a large extent, and are of the "unfit" evolutionally. Modern cities seem to produce more of them than the old civilizations.

That forming the fifth class may be said to be the men of morbid, wayward impulses—the crank, the anarchist, the markedly eccentric, the man who easily falls into criminal ways, but is not a "born" criminal, the asocial man, who becomes a recluse, a miser, or a chronic drunkard, or a "ne'er-do-well" (Fig. I. A. V.). This class may have much originality and much force of character, but they will not be drilled into the conventional ways of society. They are born Bohemians, and they are almost always a trial to their friends and relations, and to society. At the crises of the history of a nation or race they are apt to become leaders in criminal and dangerous courses. Many of them are instinctive revolutionaries. Society does not hold them irresponsible, but is slowly coming to take a scientific view of them, but it as yet can do exceedingly little to help or change them. It can only make the best use it can of them and endeavour to keep them from being unduly harmful. Their brain reactions are automatic and abnormal. From the strictly scientific point of view most of them are only partially responsible. Most of them show changes from the normal in face and eyes, head and palate, walk and gesture. Both this and the sixth class procreate insane or weak-minded children in undue proportion. Lombroso was the first to try to connect in a definite and scientific way their bodily characteristics with their mental and moral characters and course of life, but he overdid the mark, and his conclusions were not quite justified by his premisses. His general ideas on the subject, however, were original and valuable and

they have stimulated the accurate study of this class. There are fortunately only one of these to every four or five hundred citizens.

The sixth is a large class and consists of the men and women who are definitely under the average in intellect and will-power (Fig. I.A.VI.). A large number of them are in Booth's "submerged tenth"—the tramp, the born pauper, the instinctive "born criminal," the dipsomaniac, and the moral pervert. We here enter a region where complete responsibility for conduct cannot be granted. Scientifically such men are not fit for the exercise of political rights, and their liberty should be strictly conditioned by the requirements of the society in which they live. The enjoyment of full civil rights by this large class has constituted one of the difficulties of modern society and of the free nations. The deprivation of this full liberty will be the first step towards the solution of those difficulties. They also badly need human help and sympathy, which, however, they seldom appreciate and are not grateful for, and which their qualities and conduct do not naturally evoke. On the contrary, they excite antagonism and revenge. They commonly show marked bodily abnormalities ("stigmata of degeneration") in head, face, palate, and expression This class constitutes about one in eleven of the community.

We now come to the five classes where mental unsoundness comes in definitely in some form or other (Fig. I. B.). Brain disease or brain defect is actually present in all of them. The seventh class is represented by the man who is subject to attacks of mental disease, but who recovers from them and is able to do his work for himself and society when free from such attacks (Fig. I. B. VII.). Many of this class are clever and do good work when well. We are here face to face with a typical mental disease, whose maintenance and care, if poor, always require to be provided for by society, and whose treatment must be exclusively

carried out by the doctor, during the time mental unsoundness lasts. They excite sympathy and receive help from all right-minded men and women, and the State has spent large sums in providing hospitals for their cure. About one in every four hundred and fifty of the population suffers from or is subject to such attacks. Such men show no invariable type of head or body. They are the hereditarily unstable in brain—that is, they are unresistive to mental and physical causes of mental upset.

Nearly allied to this class, but scientifically somewhat different, is the eighth class, where mental unsoundness comes on during the development of the brain, between fourteen and twenty-five, and is never recovered from, ending early in a condition of permanent mindlessness ("Secondary" or "Terminal Dementia") (Fig. I. B. VIII.). From birth most of this class has the seeds of incurable mental disease as a doom hanging over it, although during the early period of life we cannot as yet always recognize that such a fate is there. Fortunately we cannot tell, even when the attack of acute mental disease comes on, at twenty or thereabouts, whether the case has such a doom of incurability, or is going to recover and be of class seven. I have placed most of this class under my "Adolescent Insanity," which I shall subsequently describe. Most of Kraepelin's cases of "Dementia Praecox" are in this class. The incurable portion of them I have called cases of "Postponed Imbecility." They all have and are due to a strong heredity to insanity or other nervous disease. They represent one of Nature's evolutionary attempts to stop a bad stock. When they pass into dementia they mostly live long and form most of the incurable mental disease which exists in our mental hospitals, so that their numbers are large. Those persons usually show a marked type of palate, tending towards the "deformed palate" of idiocy, and other stigmata of degeneration.

Previous to the attack of mental disease many of them show mental peculiarities and abnormal reactions when their mental history is carefully analyzed. We are now particularly studying this class so that we may be able to predict their future, and perhaps prevent their doom in some cases, by adopting from an early age precautionary and preventive measures and environments. They form about one four hundred and fiftieth part of the population.

The ninth class consists of the epileptics, of whom there are reckoned to be about seventy thousand in the United Kingdom (Fig. 1. B. IX.). This also is due to disease of the brain pure and simple. Many persons labouring under this disease are sane, responsible, and able to do their work, but, taking the class as a whole, probably five-sixths of them are permanently, or at times, irresponsible, and they tend to sink into mental enfeeblement or mindlessness as life goes on. An epileptic, at his worst, is not only irresponsible, but may become highly dangerous. He often tends to crave drink, and alcohol is a special irritant to his brain, always exciting him mentally. As a brain disease epilepsy is nearly allied to mental disease and idiocy. Epilepsy comes on in 80 per cent. of the cases before and during adolescence, previous to the age of twenty-five—that is, before full development has taken place. Epileptics form one seven-hundredth part of our population.

The tenth class consists of the congenitally weak-minded, who are so far below the average as to be irresponsible to the law, but who can be taught to do simple work under supervision in many cases, but cannot be made self-sustaining (Fig. 1. B. X.). Most of this class needs the care of relatives or the State, for the most part given in special institutions or private families where suitable training can be carried out, and special precautions taken against sexual and other dangers. The congenitally feeble-minded child or man commonly shows his state in head

and face, in his movements, and in his expression of eye. The recent Commission distinguished this class from the next by calling them the "Feeble-minded." They are estimated by that Commission to be 125,000 in number, and form one to every three hundred and fifty of the population.

The last and lowest class, the eleventh, is that of the worst congenital imbeciles and the idiots who are entirely helpless, largely mindless, for the most part untrainable, and who fall as a natural burden on the State (Fig. I. B. XI.). They, with classes eight, nine, and ten, necessarily form part of the dead-weights of society, which civilization can help and sympathize with, but cannot cure. Evolutionary unfitness finds its acme in them. They were, and are, always put to death, or allowed to die from neglect amongst barbarous and primitive peoples, and often in civilized peoples, up to recent times. The idiot is an arrested and degenerate man all over, in body and mind, commonly dwarfish, ugly, awkward in movement, and so little resistive to the enemies of life that most of the class die before thirty—largely of consumption. They form one to every eleven hundred of the population.

The whole of the last five classes, the unsound of brain and mind, together amount to one in every hundred of the population. The last six of the classes all come under Lombroso's theory that they may be "reversions" to animal and barbaric, primitive, and extinct types of life in bodily and mental characteristics. It is certain that none of them should propagate their species. Nature provides for that in the case of the idiot, but in the case of the feeble-minded, the epileptic, the adolescent insane, and those subject to temporary attacks of mental disease, they often have the capacity and are apt to breed, as well as to gratify the reproductive instinct in perverse and unnatural ways. Classes six, eight, nine, and ten have diminished control over their

desires and cravings, and lessened moral feelings in regard to such matters. They all have a bad nervous and mental heredity. The young women of the sixth and tenth classes are often dangerous to society and the race. Illegitimacy and prostitution find their most frequent sources from amongst them. Science, eugenics, morality, and political expediency all point strongly to some effectual means being taken whereby such bad stocks should not propagate their kind. Hereditarily the last six classes are all connected. The children of any member of any of those classes may develop into any of the others. The progeny of an epileptic is likely enough to be idiotic or insane. No modern stock breeder would, for a moment, use such a sire or dam. Physical means of preventing reproduction, not dangerous to life or health, loom before us now as a possible solution of this problem, when the facts are better known and the Legislature is prepared to use the means which modern science places at its disposal for the purpose.

The blocks in Fig. 1 give graphically an idea of the proportions of those eleven orders of brain in the United Kingdom. It should help to reassure the timid, who think and sometimes say that the sanity of the country is nowadays in an alarming condition, for after all the unsound form but a small part of our population, being under one per cent. of the total number.

CHAPTER V

THE BRAIN, ITS MECHANISM AND ITS ACTION

THE brain of man is by far the most complicated and delicate piece of machinery in the world. We know more about its structure than we did thirty years ago, but still there are in it vast territories as yet unlabelled and unknown. The fact that its functions are inconceivably important and many of them extraordinarily delicate means that the machinery through which those functions are performed is correspondingly paramount and delicate. One way of studying and understanding the human brain is to trace the corresponding organ in the lowest class of animals where a distinct nervous tissue is first seen, and where it is simple in its construction and action, up through the animal kingdom, until we reach man. Looked at in this way, we find that it begins with one nerve cell and a nerve fibre —that is, we have a producing and a conducting apparatus. The closest analogy I can use is the simple one of an electric battery and the copper wire which conducts the electric energy to where it is needed. But to constitute a real analogy with the nerve cell we must give this simple electric battery many functions which it does not possess. We should not only have to endow it with a receptive action, a capacity to be sensitive to stimuli of various kinds from outside, but also to attach to it a needle which moves with every impression it receives from the battery, the needle thus representing the

muscles and the molecular movements of nutrition. We would also have to give it the great function of self-repair.

Beginning with this simple apparatus, we require in imagination to multiply such a cell till it attains the

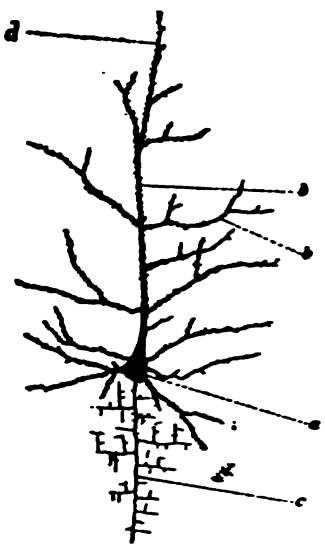


FIG. 2.—A BRAIN CELL AS SEEN AFTER PREPARATION BY THE "GOLGI METHOD."

This shows its outline only, but brings out its branches—"dendrites"—and "axis cylinder," or the fibre that passes down from the cell into the spinal cord and nerves of the body, so enabling the cell to transmit its energy to the most distant parts of the body. The branches are seen to be covered with innumerable small knob-like projections, the "gemmules." *a*. The cell. *b*. Its branches or dendrites. *c*. The "axis cylinder" and its processes. *d*. The "gemmules."

number of three thousand millions or so, we require to imagine the cells to have assumed a great variety in appearance and size, to have taken on many new functions, to have arranged themselves in innumerable groupings, one grouping probably containing a hundred

thousand cells and another grouping a million. We require in imagination to attach to each cell dozens of fibres, each of which branches out into dozens more,

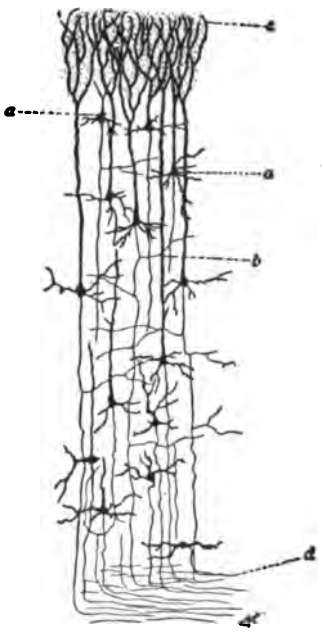


FIG. 3.—THIS SHOWS HOW THE CELLS ARE ASSOCIATED TOGETHER IN GROUPS IN THE BRAIN, EACH CELL MEMBER OF THE GROUP WORKING WITH THE OTHERS. ("GOLGI METHOD" OF PREPARATION.)

a. Cells. *b*. Branches ("dendrites"). *c*. Method in which the branches are associated at the surface of the brain, enabling all the other groups to receive impressions from this group. *d*. The "axis cylinders" passing from the cells through the brain, forming part of its "white substance," and then down to the spinal cord and to every sensitive and muscular part of the body.

the completed cell being called a neuron (Fig. 2). We need to imagine the fibres so arranged that they put every one of the millions of cells more or less into connection with every other, not individually, but

through the groupings I have referred to (Fig. 3). We require to project the fibres so as to bring them into connection with every organ in the body and every function that body performs, and to imagine that each organ possesses incoming and outgoing nerve fibres.

If our imagination is not paralyzed by its tremendous effort, we then need to realize a most delicate series of

FIG. 4.—SHOWS HOW A BRAIN CELL GETS ITS SUPPLY OF BLOOD FROM A CAPILLARY BLOOD-VESSEL LYING IN CONTACT WITH OR VERY NEAR IT.

a. Cell. *b*. Its capillary blood tube. *c*. Another capillary. The brain cells need for their proper mental working a very large supply of pure blood. This is how they get it.

structures for the nourishment of this apparatus of cells and fibres in the shape of minute capillary blood-vessels, one of which has to be almost in contact with every cell of the larger sort (Fig. 4). The cell also needs, and has, not only this blood supply from which it takes the chemical materials which it needs for its work, but as those materials that it has attracted from the blood are

undergoing constant and rapid chemical change we need a perfect drainage apparatus to remove the products of the chemico-vital changes and decomposition, which if not taken away at once do harm to the cell itself. In fact, the cell requires to be kept constantly going night and day in either building up its own materials, which is

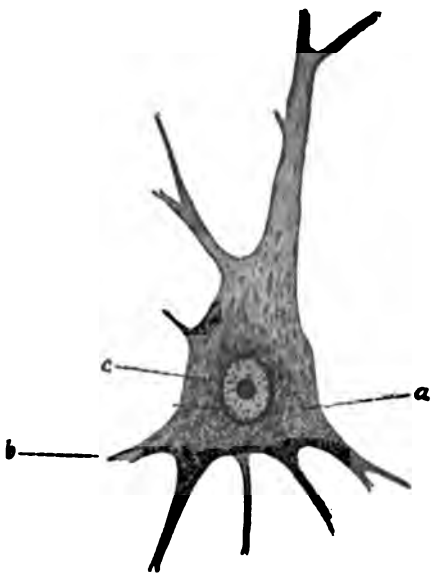


FIG. 5.—A LARGE BRAIN CELL.
Showing that the material for potential work, "chromatic granules," exists in very small quantity. This is seen after exhausting conditions and great overwork. *a*. Pale chromatic granules. *b*. Outgoing and incoming fibres. *c*. Nucleus.

chiefly done in sleep—this is the process of "anabolism"—or by creating nerve energy out of the various materials and the oxygen absorbed from the blood—which is the process of "katabolism."

As the result of prolonged work by many able men devoting the best years of their lives to this study, we are slowly acquiring a knowledge of the structure and func-

tions of the organ. By slicing the brain into films of extreme thinness, hardening those films, staining them with various pigments, and then by using microscopes of great power, we are able to see, not only the cells and fibres and their arrangements, but, in many cases, to see whether the cells are full or empty of the special

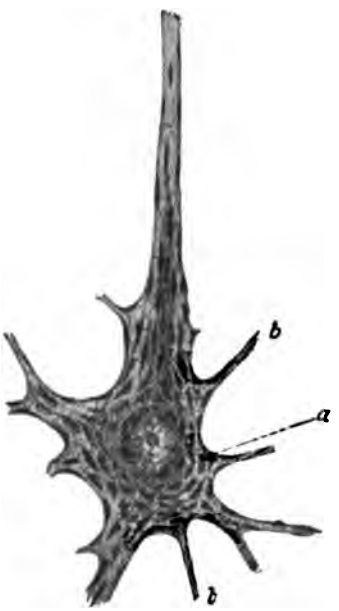


FIG. 6.—A LARGE BRAIN CELL PREPARED BY THE "NISSL METHOD."

The cell is full of materials, "chromatic granules," for potential work, such as a young man or woman after sleep and rest should have. *a*. Chromatic granules. *b*. Outgoing and incoming fibres.

material out of which nerve energy is produced, which is called the "chromatic" substance (Fig. 6). In the bee, for instance, which has a comparatively simple nervous system, if those cells are examined when it returns from a hard day's work, Hodge found them to contain little chromatic substance. The

cells had in fact used up the materials in their "coal bunkers" to produce the energy required for the long flight during the day. If they are examined in the morning after the rest, which in the bee corresponds to our sleep, they are found to be re-coaled and full of masses of chromatic substance—in fact, of potential energy for their day's work. A look at the pictures (Figs. 5 and 6 contrasted, pp. 35, 36) shows the differences between a full cell after sleep and an empty cell in the evening after work.

Two of the latest contributions to our knowledge of the structure and functions of the brain cortex have been made by two British investigators—Drs. A. W. Campbell [1] and J. Shaw Bolton [2]—each of whom is a psychiatrist of large experience. In their professional work they had abundant material in the shape of the brains of the defective and unsound in mind—material which they used with patient and scientific labour extending over many years. Their results are of the highest importance as extending our knowledge of the whole subject of mind and brain, both in health and disease. Those results are too technical to be explained in a work of this character; but it may be said that they show the different parts of the cortex of the brain to have different structures, the cells being different in number and in form, those differences corresponding to the different mental, motor, and sensory functions of the organ. Dr. Bolton's investigations confirm those of others in showing that the forward portion of the brain is that part which is connected with mind and especially with control. His work also tends to confirm with much greater certainty the fact that there is an essential physical basis of mental disease and defect in a want of de-

[1] Gulstonian Lectures, the *Lancet*, 2, 9, and 16 April, 1910, by Joseph Shaw Bolton, M.D., F.R.C.P.

[2] *Histological Studies on the Localization of Cerebral Function*, 1905, by A. W. Campbell, M.D.

velopment or a change in the cells of the cerebral cortex. He shows that there are certain layers of those cells which are connected with instinctive activities of the brain, and others that are connected with voluntary action. He compares those layers in the lower animals, in idiots, and certain classes of the mentally unsound

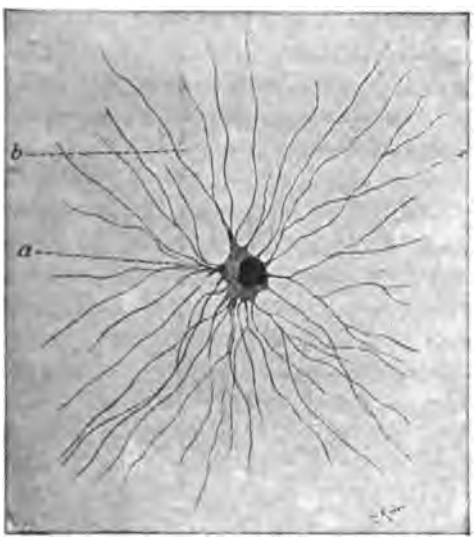


FIG. 7.—A CELL OF THE PACKING AND BINDING MATERIAL OF THE BRAIN, THE "NEUROGLIA."

By means of those innumerable fine fibrils (*b*) which are fixed to the blood-vessels a strong network is formed for the brain cells so that they lie free from the risks of injury. Those fibrils act as guy-ropes to the capillaries and small vessels. A strong framework is thus given to the brain. *a*. Cell of neuroglia. *b*. Fibres.

with those in the normal human brain in its adult stage, and finds marked differences between the four, which explain in some degree the mental differences.

A most delicate membrane surrounds each nerve cell, and atfached to it are innumerable minute but strong fibres of what is called the "neuroglia" or packing

substance, which act as guy ropes and hold the cells and the other constituents of the brain in position, and thus prevent the effects of shock and mechanical impacts from hurting and displacing them (Fig. 7). Each brain cell has near its centre a round body called the nucleus (Figs. 5 and 6), which is the most important

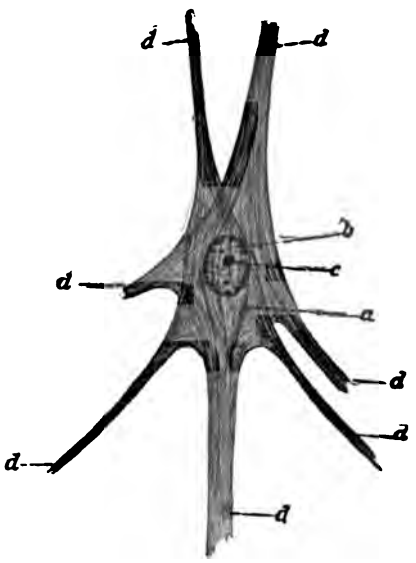


FIG. 8.—A NORMAL BRAIN CELL OF LARGE SIZE PREPARED TO SHOW ITS FIBRILS.

a. Body of cell showing innumerable minute fibrils passing through it. *b*. Its nucleus. *c*. Its nucleolus. *d*. The outgoing and incoming fibres through which it is related to other cells, to the spinal cord, and to the nerves of the body.

part of it. The substance of the cell outside the nucleus is capable of repair if only slightly damaged or poisoned by disease, but if the nucleus is injured the cell dies and is incapable of restoration. Coursing through each cell there are innumerable minute fibres called fibrils, which connect the various processes of the same cell with each other and with those of other cells and fibres (Fig. 8 *a*).

The whole brain is enclosed in a strong bony case, the skull-cap, and also a tough leathery membrane, the dura mater, which thus form an effective protection to it. Looked at in the living body, when exposed by accident or in the course of a surgical operation, the brain looks like a greyish white soft substance. In its cellular parts it is grey in colour and pure white in its fibrous parts. The brain of a child at birth when

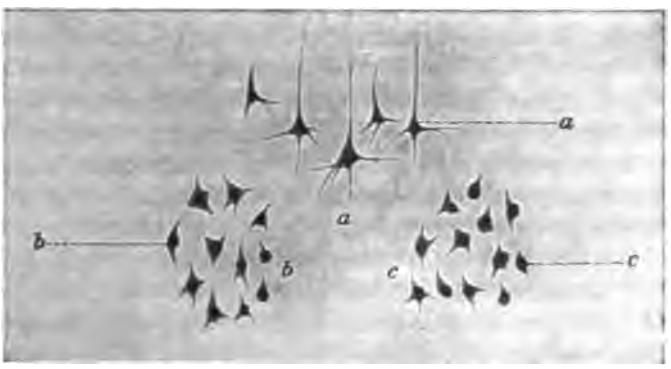


FIG. 9.—THREE GROUPS OF BRAIN CELLS.

One (*a*) showing the normal appearance of the cells in a grown man or woman; the next (*b*) showing their undeveloped state in a newly-born child, with normal nucleus but small cell contents and few short processes; and the third (*c*) showing the cells arrested in the development in an idiot of 20, those being in much the same state as in the newly-born child. The brain cells have not grown and the mind has not developed.

examined microscopally is seen to be to a large extent undeveloped in its cells and fibres (Fig. 9, *b*). The various elements composing the brain are so exquisitely arranged and so delicate that the human imagination altogether fails to get a realizing sense of the structure as a whole. The great evolutional process that has been going on since life began on the earth finds its consummation in this mechanism. It represents the ultimate forces and the potentialities which are summed

up in the word "life." It is the last word that Nature has yet spoken.

What the Brain does.—When we come to examine into the question of what the brain does, its marvels still further increase. The voluntary movements of the body, which are the chief means by which living beings of the higher order obtain food, are all originated, regulated, and controlled by it. Of late years, through a process of elaborate investigation and experiment, it has been discovered that certain parts or areas of the brain, which we now call "centres," are specially devoted to those voluntary movements as well as to the special senses, and not only so, but each limb and every group of muscles and every sense organ has its own centres. When the brain is exposed in an animal, or during a surgical operation, if a galvanic current is made to touch any of those "motor centres," so as to stimulate it, the muscles which it controls contract, and acts of grasping, moving, crying, &c., are performed. The electricity in this case acts as the stimulus, instead of the will-power. If the needle conveying the current is now changed from one centre to another different movements take place in other limbs, and so it is demonstrated that every set of muscles has its own motor centre in the brain from which it receives the impulsion to movements. This is further proved by the fact that if in infancy a limb is amputated the nerve cells in the motor centres of that limb in the brain shrivel up.

This "localisation" of function in regard to voluntary movements was the first of the great modern advances in our knowledge of the functions of the human brain. Speech, which is more closely allied to mind than any other series of muscular movements whatever, was the first to be proved to have a local habitation and a home in the cortex of the brain. It was discovered by Broca, a great French physiologist and physician, that when

there was disease of a certain small part—in fact, of one convolution on the left side of the brain—the patient who suffered from this could no longer use language in an intelligible sense. His mind was so far intact, but if you showed him a hat he might call it a watch, or a shoe, or a stick, and he did not know that he was misapplying those names. Speech results from a series of muscular movements, and on it mind mainly depends. It, in fact, expresses nine-tenths of the higher mind of a human being, without which there could have been no development of mind by evolution at all except of the simplest kind. No abstract ideas could have arisen except for the existence of speech to express them. Being so related to mind it is the case—and in fact it could not otherwise be—that in many forms of mental unsoundness speech is affected co-ordinately with mind. The medical man who has to investigate and treat mental disease has always to examine the speech function most carefully and to interpret its defects in relation to the mental disorders that may be present. I shall refer to this further in Chapter XXX.

The most important of the many nerve centres in the brain, and especially in the cortex of the brain, are related to mind, some more and some less. The muscles of the face whose chief function it is to express emotion we may call the "mind-muscles." They are far more related to mind in their brain centres than the muscles of the legs or arms, though we know mind can be expressed in attitude, and gesture, and position. Therefore in all forms of unsoundness of mind the action of those mind-muscles is to be most carefully observed, which is another way of saying that the expression of the face and eyes may be one of the most important signs of unsoundness of mind. There is almost no form of mental unsoundness or defect that does not show itself in the expression of the face. The delicacy and the variety of effect which those mind-

muscles are capable of producing is simply incredible. Of the three thousand millions of the inhabitants of this world there are practically no two alike in the expression of their faces, and even when they are nearly alike at rest, we find that they have merely to be put into action, to speak or smile, for example, to show marked differences. The mind-muscles accurately express in a normal person the emotions and the brain working. What an extraordinary number and variety of combinations, therefore, in the working of those muscles it needs to produce such an inconceivable number of mental effects!

Each brain cell has the innate power, when working rightly, of doing four things: first, that of receiving impressions, or "stimuli," from the outside world, or from the different organs of the body; second, that of giving out nerve energy (katabolism) in response to those stimuli; third, that of building up its own substance and repairing its waste (anabolism); and fourth, of storing up the impressions it has received and using them when needed (memory). To illustrate how delicate the two former processes must be, think of the cell's power which it must have of distinguishing between the impressions of heat or cold in their various degrees, or of impact and weight. What extraordinary minuteness of discrimination is involved in distinguishing light and colour in their various shades, sound in its innumerable tones, and the variety in odours, the particles of which are so infinitely minute that chemistry and physics utterly fail to detect them! Then as to movements, when we want to lift an ounce how minute must be the stimulus sent down from the brain; when we want to lift a hundredweight what a flood of the same energy is needed; when we play the piano, what instant shiftings from one series of motor cells to another, and what delicate combinations of muscular co-ordination have to be instantaneously provided

for to express the shades of feeling that go with the music !

When we come to consider the relationship of brain-cell action to mind, we can only say at present there is a "psycho-physical parallelism," constant and absolute, between them. If a group of cells which are the vehicle of mind come into action we must have mental activity. When we have any exercise of mind whatever it implies brain-cell katabolism or activity. All the recent facts of physiology and psychology point to this conclusion. There cannot be an unfruitful brain-cell action, and there cannot be a mental action without this material basis.

Memory of things and events could not take place except all brain cells had the innate quality of recording in a permanent form the impressions made on them. The group of brain cells that once have been subjected to the stimuli of light or sound are, so long as they exist, different in molecular constitution from what they were before they received those impressions. That change in them is the basis of memories. The brain cells devoted to the mental function do not exist as complete organic entities at birth, and therefore they do not memorize. As the mental faculties are gradually developed the cells also undergo organic integration. In addition to receiving and registering those sense impressions from outside the body, they have also the much more marvellous process of registering thought and feelings. Every train of thinking, every emotion felt, leave certain of the brain cells different in their molecular structure from what they were before that took place. Those external and internal stimuli, going on from birth to full development of the cells, are the chief means of their growth, of their forming connections with each other, and of their ultimate completion as a piece of effective machinery for mental work. The child who is born deaf and blind, or becomes so soon

after birth, is not capable of developing the higher mind or speech, because it is not receiving stimuli, and mentally it remains in a condition analogous to idiocy. It is this absolute dependence of mind on brain which is so difficult to realize and take account of in mental health or in mental disease. There has grown up among mankind, savage and civilized, a belief, which has now become almost instinctive, that the mind, somehow or other, can act independently of the body. That is not so in this world, otherwise all the conclusions of modern science are at fault on this point—"No brain no mind, no senses no intellect."

To enable the brain cells to develop and grow and work properly they need, amongst other conditions, suitable nourishment from healthy blood, and to give this the heart and the blood-vessels down to the minutest capillaries require to be healthy. They are constantly, too, dissipating energy, which means that rapid chemical and metabolic changes are ever taking place in them. Highly organized substances are always being decomposed into simpler chemical materials which have to be rapidly eliminated from the cell, and thrown out of the blood, by the kidneys and other excreting glands. The bio-chemical action of those cells must be normal and ever most active to secure mental soundness and efficacy. There are no chemical processes known in nature that are of so much importance or so delicate as those going on in a human brain all the time.

This scientific conclusion is definite—that as on the proper working of these brain cells and their various adjuncts mental health depends, so through their morbid working mental unsoundness is caused. I shall afterwards go more fully into the difficult question of the causation of mental unsoundness, meantime I can hardly accentuate too strongly the fact that mental unsoundness means brain unsoundness, and that brain unsoundness,

if of its higher regions, necessitates mental unsoundness. If wrong or improper stimuli, or no stimuli, are applied to the brain cells, they tend to act unsoundly or deficiently. The duration of the life of each cell is the duration of the active mental life of the individual. When damaged beyond a certain point they cannot repair themselves, when destroyed in any way they cannot renew themselves. The number of rudimental brain cells in the brain of the child at birth is exactly the same as their number at death, with the exception of those that have undergone waste from disease or senility.

There is one problem in brain-cell action which, among many others, is yet very obscure. It is certain that all the cells are not at work at the same time. They work in relays, as it were. At any one moment there are comparatively few cells giving out energy, considering their enormous number. The arrangements by which this process of calling only certain groups into activity at one time takes place is not as yet understood. The amount and kind of their mental action that does not pass before consciousness is as yet a debatable point. There is much reason to believe, on physiological and psychological grounds, that such action, which F. Meyer called "subliminal consciousness" or what I should say might more properly be called "subliminal mind," exists. It is otherwise called "unconscious cerebration." Probably a nerve cell is not at any time, and cannot be, in a perfectly static or non-active condition, but its action may vary in grade or degree to enormous extent. There is in it a necessity to energize, but the degree and kind of that energizing may differ greatly. The difference in the output of energy between that condition in which a man sits down before a comfortable fire, trying to "think of nothing," his consciousness and mental activity reduced to a low ebb, and the state of the brain cells in the same man when he is delivering an impromptu

speech, feeling angry, selecting and trying the proper words to express his meaning, gesticulating freely, and regulating the tones of his voice to express the various emotions that are holding him for the moment, is almost the difference between rest and railway speed. It is certain that this railway speed consumes energy and exhausts the cells in exact proportion to its intensity. I believe that the so-called "subliminal consciousness" —if it is a proper thing to use the term consciousness at all in any such sense—can be so far explained on strictly physiological grounds by the fact that every sight and sound, every thought and feeling, every imagination and act of attention, have left the brain cells with latent memories in their molecular constitution. If that constitution is such that the cells must energize in some small degree at all times, we then have a physical basis for this "subliminal consciousness" which can be stimulated at any time into such a degree of acuteness as to rouse attention and come before the *ego*.

This difficult series of processes as a whole has to be kept in mind in considering unsoundness of mind. There are many cases of unsoundness of mind where the memory of past events is temporarily or permanently lost, this, no doubt, arising from a derangement of those processes by which normal memories are brought before consciousness. There are many other cases where patients seem to have double consciousness, and where it is theoretically possible that the normal processes which regulate latency or activity of the cells have been deranged. All unsoundness of mind, it is to be clearly kept in mind, does not necessarily imply any gross or palpable injury or alteration of the cells that can as yet be detected by the finest microscope at our command. It may, and does, arise in perhaps the larger number of curable cases of technical insanity in their earliest stages merely out of derangements in the working of the machinery, or from the temporary effects of slight

poisonings—"toxins"—and not of organic injury to any of the cells. Your watch may go wrong from want of the lubricating oil, or from the subtle change in its wheels that has been produced by proximity to an electric dynamo without any perceptible damage to its wheels or mainspring.

One of the most common of the symptoms of unsoundness of mind is insane delusion or hallucination—that is, intellectual beliefs in what is unreal, or sense impressions of what does not exist objectively. Now as to the latter—the hallucinations of the senses—we have at all events a clear physical basis for their explanation. One merely has to suppose that the cells which receive, let us say, the impressions from the eyes, which to consciousness at the time are very vivid, and which we call presentation, are unduly stimulated from some irritant, and that without any external stimuli from the eyes the cells themselves pass into the former vivid activity of presentation instead of the subdued activity of memory or representation, so that consciousness cannot distinguish the difference at the moment, and you have what is called visual hallucination. The vision is then from the brain cells, not from things seen by the eye. From all this it is clear that an acquaintance with brain anatomy and physiology is essential to the study of unsoundness of mind.

CHAPTER VI

THE GENERAL CAUSATION OF UNSOUNDNESS OF MIND

OF all known diseases or disturbances of function, unsoundness of mind is the most difficult in which, in many cases, to assign a definite cause. The more, however, we investigate the heredity of mental cases, the more we know of their personal history and previous environments, the more exhaustively we analyze the symptoms present, mental and bodily, and the more we utilize in our investigations recent discoveries in regard to brain structure and function and the facts of psychology, and the more we know about the causes of disease in general, the greater are our successes becoming in determining an accurate causation.

The common idea that when the mind is affected there necessarily must have been as its cause some mental stress, some disappointment, or some affliction to account for it is less than a half-truth. It seems impossible for anyone without a knowledge of physiology and brain work to believe that every disordered act of consciousness, of thought, of feeling, and of desire must necessarily be accompanied by, if not caused by, some abnormal physical or chemical change in the brain. The recently used Continental expressions of "psycho-physical parallelism" and the "law of determinism" fitly express recent conclusions in regard to this matter. If we accept the fact that it needs a perfect brain in all its multiform and com-

plicated mechanism, with a fairly sound heredity and a reasonably conformable environment, to secure perfect brain work during the life of any man or woman, we realize at once how many are the chances of disturbances in mentalization from birth to death in any individual. The most characteristic of all the qualities of the human brain is that it has the power of reaction to the innumerable stimuli that it is constantly receiving both from the world outside it, from the rest of the body, as well as from the different parts of itself acting and reacting on one another.

A Perfectly Sound Brain can scarcely become Unsound from Mental Causes.—A brain that is absolutely sound in constitution can scarcely be made unsound in its mental functions by any mental stress whatsoever. That is a commonplace in tragedy. No grief, no joy, no sorrow, no loss, no affliction will have the effect of producing that kind of unsoundness which we call insanity. Such a brain can be depressed, but it is a sane melancholy, not an insane melancholia. It can be elevated in action and feeling, but it is sane joy, sane exaltation, not mania. Its power of willing may be interfered with so that for the time being mental action is paralyzed and weakened, but it is a sane lethargy, not a dementia. Like the patriarch Job, the owner of a sound brain and mind may lay himself in dust and ashes when terrible mental and bodily stress occur, but he still remains sane, and will rise up clothed and in his right mind if his circumstances change for the better. Nature provides that a sound brain can feel only up to a certain point, beyond that, even if the cause is still continued, it ceases to feel pain mental and bodily, and so takes no harm. Had this not been so the world would not have lasted as it has done, and history should have had to record more individual and national collapses. When Rome was sacked by the Vandals, when Leyden was besieged by the Spaniards, there would scarcely have remained a sane man or woman in those

cities if mental and bodily stress alone had had the power to deprive men and women of their essential soundness of mind. I do not say that men and women may not be altered in mind, deadened in their feelings, lessened in their power of action, lowered in their intellectual capacities, and may not even be killed by such stress, but "mad" in the technical sense they cannot become from those causes.

It is only when there are flaws in the brain constitution by original inheritance or from other causes that mental stresses have the power of inducing unsoundness of mind. Those hereditary flaws in the mental vehicle of the brain have, in the course of our civilized history, become very common and very various. They are often so latent as not to be discerned until the stress arrives. A steam-engine may work to perfection in all its parts until it is driven long beyond the speed for which the mechanism was arranged. Then the latent weak parts appear and there is a breakdown. If Job's mother had been of a nervous constitution he would probably not have tolerated so calmly the afflictions sent him by the Almighty and the almost equally terrible harangues of his friends and comforters. Many of the so-called causes of unsoundness of mind, the chief which I shall enumerate presently, are really secondary or partial causes.

To the effect of certain gross physical damages, or diseases, or brain poisons, however, any brain may succumb, although innately sound at the beginning. If Socrates or Marcus Aurelius or Job had continuously poisoned their brains by bad London gin, they would inevitably have become unsound in mind, though it might not have taken the form of technical insanity. In the case of any man or woman there may arise poisons from within, the result of diseased action of the internal organs of the body, of the nutritive processes, or of the various glands which may make the blood injurious to the

brain, and so upset its mental work. It does not need a hereditary unstable brain for this to happen, although the mental effects occur much more readily where such instability exists. If the brain is lacerated by physical violence, or if it is torn up or pressed on by a tumour or effusion of blood, then its mental function may be upset, without any original deficiency.

The causes of mental unsoundness may be from without ("exogenous") or from within ("endogenous"). They may be, as Tanzi[1] puts it, somatic, psychical, or social. Bad heredity is the most potent and all-embracing endogenous cause. Toxins of various kinds from without and from within are the most prevalent of the immediate somatic causes according to modern ideas. Social causes are also exceedingly important.

Those statements will have prepared the reader of this chapter for the conclusions that there may be, and in fact there commonly is, in the case of every man who becomes unsound in mind, more than one cause working together towards the cataclysm. There are usually predisposing and exciting causes at work, and often also proximate and immediate causes which bring on the symptoms. A doctor is usually not satisfied when one cause only is assigned for an attack. He looks out for more. A man suffering from unsoundness may have a bad heredity, his general health may have been weakened, he may have been taking too much alcohol to "keep himself up," and, lastly, he may have suddenly lost his fortune. It took all those causes acting together to upset his brain.

[1] *A Text Book of Mental Diseases*, by Eugenio Tanzi, translated by W. Ford Robertson and J. C. Mackenzie, 1909.

CHAPTER VII

HEREDITY

THE hereditary transmission of good and bad qualities in living beings is now attracting more attention among thoughtful people than it ever did before. Its momentous importance to mankind is being realized. In biological science heredity is now, in some of its aspects, the question of questions. Acute differences of views have prevailed since Lamarck, Darwin, Weissman, and Mendel put forth their respective theories of heredity. Whether acquired characters and the effects of life experiences may be transmitted or not has divided biologists into two opposing schools. That no such thing can possibly take place under any circumstances has become the ark of the covenant with one school. That evolution, from a lower to a higher, in animal and vegetable life could not possibly have occurred without some transmission of acquired characters is the shibboleth of the other. Certain forms of mental disease and defects are admitted to be the most hereditary of all deviations from health. How did they originate at first? Can we adopt measures to change or eradicate evil heredity and its effects? are questions that go to the root of the science and practice of hygienic mental medicine. They also are of high importance to the sociologist and statesman. If we could lessen the finished articles of insanity and idiocy we should also necessarily diminish the initial stages of crime and poverty and the

social disturbances related to them. If evil mental results arising in one generation of mankind through unfavourable conditions can be transmitted to succeeding generations, it necessarily follows that through the operation of favourable and antagonistic environments good mental results may be re-established and transmitted. The neo-Lamarckian and Darwinian theory of the possibility of acquired characters being transmitted is by far the more stimulating working hypothesis for the doctor and the statesman. To trust entirely to "favourable variations" and the gradual extinction of the unfit in mind, through their slowly dying out, seems to paralyze human effort by inducing a fatalistic state of mind. It is bad enough that present opinion tends toward the conclusion that little can be done by a scientific selection through marriage towards eradicating a bad stock or strengthening a good one, in man at least, in spite of the abundant demonstrations that this is possible, and even easy, in the domestic animals, where it is supplemented by the killing off or sterilizing of the poorer specimens. Galton and his new science of "eugenics" are having a hard task to persuade mankind that this is feasible, and to adduce facts showing that it has often come about through accident as it were. Human emotion and sentiment are not readily manipulated, nor are they always very accessible to high altruistic motives with an uncertain futurity. "What has posterity done for me that I should sacrifice my inclinations to it?" is often held to be a pardonably selfish question. Yet to mitigate mental defects and to raise the general effectiveness of mind in future generations it seems that some such motive must be made more operative among mankind.

In regard to the inheritance of unsoundness of mind, it is essential to remember that it is not the special mental defect or disturbance that is inherited, but that it is either a general defect of brain nutrition or an

instability of working in the higher nerve cells; or it may be that the quality of resistance against toxins and other enemies, which is an essential part of the healthy constitution of all living tissues and organisms, is diminished. Or possibly the evil inheritance may consist of individual departures from what one may call Nature's "law of averages." When a new individual organism begins its existence it has an innate necessity to complete the form and follow the working of its ancestry. The likeness is in no case exact, but it is within the limits of the average type of its ancestry, from which it does not fall much short, and over which it does not much pass. If the particular stock out of which the individual arises has for some reason, at present unknown to us, had the tendency to revert to the type of some remote ancestor, this would constitute an enormous divergence from its average type, and then we might have that defectiveness in the development of the mental area of the brain which is what we call feeble-mindedness. The whole of the powers and faculties of civilized man should be so adjusted and balanced as to fit him for the life he has to lead. Any marked failure in this adjustment or any lack of this balance in the brain may render him so unlike his fellows that in the scientific sense he is either of the inefficient or "of unsound mind." He is the "unfit" and will be likely not to live out his time.

The student of mental unsoundness is specially concerned with heredity. I agree with Dr. Mercier[1] when he says: "The stability or instability of a person's highest nervous arrangements depend primarily and chiefly upon inheritance." The conclusion of almost every man who has recently studied and written about mental unsoundness is that evil nervous heredity is by far the most frequent and the most potent predisposing cause of the condition. It commonly underlies all other

[1] *Sanity and Insanity*, Mercier.

causes. Without its existence there would be very little unsoundness of mind in the world. It is the chief problem of psychiatry. It is the fate which lies on millions of civilized men and women. In some form or other, in some degree or other, some hereditary fault, mental or bodily, affects perhaps the majority of mankind. If all hereditary tendencies to mental and nervous unsoundness and defects could be counteracted, humanity might breathe freely. It must be understood that I do not mean tendencies to gross and evident "madness"—that fortunately is comparatively rare. I mean the tendency towards mental irritabilities, eccentricities, unfitness to work, or to endure, or to feel normally. I mean tendencies to wicked lives, to irresponsible lives, to unregulated lives, or to cruel lives. I mean also tendencies towards bad citizenship, towards law-breaking, towards asocial practices. I mean tendencies towards callousness of feeling, towards ambitions that are markedly irreconcilable with the stability of the social fabric or the general good of humanity. I mean also uncontrollable tendencies towards gross selfishness, gross vice, and want of the natural affections. The evolution of humanity should, by this time, in the nations and races where it has had an opportunity of rising to a high degree, if law had been obeyed, have eliminated a large part of those mental and moral weaknesses of humanity. Religion in many forms, morality, a sense of duty, civilization, and sexual selection have done much, but with it all we see how the world now is even at its best. If every man's and woman's brain attained an average development, and acquired an average strength, and was free from subtle weaknesses and tendencies to be upset, we should not have existing among us those mental and moral deficiencies to which I have referred—to such a degree as they now exist at all events. They are all marks of unfitness evolutionally. They all tend to prevent stability and efficiency

among the societies of mankind. They all may be said to be of the nature of unsoundness of mind, in essential quality, if not in a technical sense.

The study of heredity is admittedly one of the most difficult branches of science and is as yet very backward. To read some of the views of the writers on heredity one might almost suppose that it was entirely a theoretical matter referring to scientific doctrine. The plain and so far intelligible old doctrine that "like produces like" has been so obscured by theories as to the precise way in which ancestral likenesses and qualities are transmitted, that the whole subject has become very complicated. The first thing to be kept in mind is this—that confusion and doubt have not arisen because of any uncertainty that like always does and always will produce like under exactly the same conditions. Biologists are all agreed that when we go down to the beginnings of life, to the unicellular organisms, each individual consisting of one cell and with no relationship to any other cell except by casual contact, those organisms will, under the same temperature, and in the same media of air and chemical surroundings, always produce the same kind of cell. But even in those most primitive examples of life, the environment or conditions cannot be always the same, and minute differences do arise which Darwin and scientists generally now call "variations," and Mendel "mutations." The existence of such variations or mutations is at the root of the doctrine of evolution. Out of such variations and their progeny, say the evolutionists, have arisen the higher forms of life, and those most fitted to survive by special adaptation to their environments. The origin of variation is as yet absolutely unknown. It is now held, however, by most biologists that in the case of those low unicellular organisms, such variations may arise through changes of environment, and that some of the variations or

mutations so produced are capable of transmitting their acquired characters to their descendants. It is, moreover, certain that variations must occur through fixed laws.

The views of Dr. Maudsley, our most philosophical psychiatrist, are so strikingly put by him that I must quote his own words: "Certain it is that there is in organic nature a strain or nisus to a more complex and special becoming of things, a *conatus fiendi* or *progrediendi*, which has wrought steadily through the ages and discovers its working alike in the innumerable variational outbursts; in the countless multitudes of seeds, buds and germs that mostly perish timelessly; in the now settled types of the various organic species; in the eager aspirations of human imagination, futile or fruitful. It is as if the mighty stream of organic plasm as it flows slowly onwards in its countless channels from age to age were intent to make new channels on the least occasion and only seldom succeeded."

"That two complex human germs, modified and qualified as such germs have been by successive combinations through countless generations, inheriting withal qualities dating from the very beginnings of life, can in combining produce variations without end is easily imaginable, but how could the two primal cells from which the countless millions of living creatures originally sprang acquire such infinite possibilities of variation? When the primitive unicellular organism divided into two equal halves and these halves divided in their turn, and so continuously onwards, a series of equal divisions and subdivisions might have gone on unchanged world without end had there been no change in the descendants. But inasmuch as the divisions could hardly always, if ever, be exactly equal, no two things on earth being exactly equal, and those which survived in the struggle for existence had sometimes to adapt themselves to different external conditions—and the least imaginable external change would not fail to cause

a suitable reaction—they necessarily acquired individual peculiarities, transmitting these when they divided, and so started the variations which multiplied to build the multicellular organism. Here then was a direct transmission of acquired characters: the first differentiations plainly due to the inherited effects of the action of the environment on the individual: evolutional variation through involutional adaptation the original cause and prime rule of Nature. Yes, says Weissman and his submissive followers, that was so once but it is not so now; such action only went on in the lowest unicellular organisms; when the cells were differentiated in multicellular organisms the primal rule was abolished, the distinction between body cell and germ cell made absolute, and the transmission of acquired characters to the germs abruptly ended. Thenceforth onward and upward from the simplest multicellular bodies to the highest human germ cells, none of which owed anything but sustenance to the vitally environing body or to the larger physical environment in which they and it chanced to be placed. An inexhaustible fund of variation possibilities with rigid exclusion of outside influence even so much as to excite the intrinsic variation, that is the apparent assumption." [1]

"Certain it is that two germs coming together in the chances of human composition may, like two chemical substances, be fitted to combine well or ill, or unfitted to combine at all—on the one hand may be so completely wanting in affinities as to be sterile, or on the other hand may have such apt affinities as to make the fine composition of genius; or, again—a noteworthy fact—may unluckily have such partially deficient affinities as just missing the best composition to issue in the eccentricity of insanity with a streak of genius or of genius with a streak of insanity. For notably thin is the partition between erratic specimens of one-facetted or wry-minded genius and some forms of insanity." [2]

[1] *Heredity, Variation, and Genius*, by Henry Maudsley, M.D. [2] *Ibid.*

"The opinion that an elementary particle of a bodily unity specialized for reproductive purposes lives in physiological seclusion is directly contrary to the whole trend of scientific inquiry, which goes to show that when one organ suffers or joys, all the organs suffer or joy more or less with it, being members of one body and members one of another; and *that* inevitably because of the intimate physical association, nervous and circulatory, and of the co-operation to one vital end of the several very complex and subtle chemical processes of the various parts of a living organism. As the so-called internal secretions of organs regularly pour into the circulating fluids of the body unstable substances which in continual flux of compositions and decompositions, by means of numerous and various fermenting enzymes, excite or inhibit its functions in various subtle and yet inscrutable ways—each organ, too, perhaps, contributing specially acting chemical agents to do its special work—it is hard to believe that any part of it lies outside physical and chemical influence." [1]

Dr. Bevan Lewis, one of our most thoughtful psychiatrists, in his Presidential Address to the Medico-Psychological Association in 1909, treats of the Biological Factor in Heredity, and after a most careful exposition of Mendel's and Vries' work, and their doctrine of Heredity, endeavours to apply that doctrine to mental disease and defect.[2] "From the biological standpoint a large number of constitutional, including nervous and mental, predispositions to disease are instances of mutation, or, in other words, of discontinuous variation; as mutants they appear suddenly, are persistent in their nature, and betray strong tendencies to transmission. This discontinuous factor is seen in the perverted metabolism of gout and diabetes, in the defective filtering apparatus of the kidney in albuminuria and polyuria,

[1] *Heredity, Variation, and Genius*, by Henry Maudsley, M.D.
[2] *Journal of Mental Science*, October, 1909.

or in the possibly endothelial defects of the vascular channels in hæmophilia, and again in the functional failure of the liver to produce an appropriate enzyme in alkaptonuria. In nervous diseases, again, the same applies to certain system-diseases of the spinal cord, and the peculiar group of 'family affections' of obscure ætiology."

The importance of those questions to man is at once realized when we consider that on their solution depend such practical issues as the following: Are the mental faculties of man, as developed, changed, and improved in any individual by food, climate, experiences of life, civilization, by morality, by religion, and by a highly complex social system, capable of being transmitted hereditarily by that individual to successive generations? Are the evil mental effects of bad habits, bad food, vitiated air, excess of alcohol, and the use of various poisons—all these being admittedly hurtful to the individual—are they capable of being sent on to descendants and so of setting up what may strictly be called a "degenerative" process in the race? The great controversy in regard to heredity now ranges round those questions. Another question naturally occurs. Is there such a combination of both influences possible that inherited character chiefly, but environmental influences also in some degrees and ways, both influence descendants, and become heritable? One of the extreme advocates of the non-transmissibility of any personally acquired characters in man is Dr. Archdall Reid, whose books on the Principles and Laws of Heredity have lately appeared.[1] He has the highest opinion of the study of heredity, in its results, both on its students and on human life, disease, and society. He says: "It seems to me that no kind of study can be made to bear intellectual fruit of nearly such value as the study of heredity. It lies at the

[1] *The Principles of Heredity*, by G. Archdall Reid, M.B.; *The Laws of Heredity*, by the same author.

root of every science and every study connected with life, from botany and zoology to medicine, sociology, or pedagogy. Who knows it not knows not life except in its superficial aspects. He may be a student of philosophy, or a worker in biological science, but in these days, when heredity enters so much into philosophy and links together so many biological sciences, he cannot be a very effective thinker or worker. It furnishes a master-key to the more tremendous events of history, and it is our only hope against disasters that loom great and terrible in the near future. It goes deep down to the springs of human life and thought and conduct, and explains why some nations are inheriting the earth and the fruits thereof, while others are dying physically or mentally. The philanthropist must know something of this science, or he will grope in the dark. The statesman must know something of it, or he may labour in vain. Transcending all else in importance is the educational value of heredity. No nation in which a knowledge of it was widespread could possibly be stupid or brutal." If there is any truth whatever in those eloquently expressed opinions by Reid, then undoubtedly heredity must play a great part in Mental Hygiene, that being the hygiene of the highest of all the cells—the higher brain cells. On those brain cells act the highest and the subtlest of all forms of environment, viz., those which rouse emotion, passion, and ideas of beauty. No one can deny that the worst effects on the individual of certain unfavourable environments, such as bad social conditions and alcohol, are chiefly on the brain. If the securing of good environment will not only benefit the individual, which no one can deny, but will also improve posterity through the transmission of their beneficial effects, then indeed we have an argument for improved human environments which is irresistible.

Most of the recent purely scientific authors agree that

the body generally does not directly transmit environmental effects to posterity. This is done through the germ cell, which is in reality an infinitesimal part of, or, as the latest theorists would say, attachment to the body. It may be accepted that if the effects of environment are transmitted to descendants that this is done chiefly through those germ cells, just as the ancestral qualities are so transmitted. Those who argue against such environmental transmission very naturally say that the evils of most bad environments act on the body and not on the germ cell. In what way can they then be transmissible? One of the latest theories of heredity is that put forward by Dr. Beard, of Edinburgh. It would be quite impossible for me to give anything like a full detail of that theory in the space at my disposal. It is so full of technical terms and implies such a profound knowledge of physiological and biological sciences that it is difficult even to lay down its principles so that they shall be popularly understood. But one may say that the leading idea of Dr. Beard's theory is that the germ cells in all the higher animals are a direct continuation of the original primal single cell. He talks of those cells being so distinct from the rest of the body, even from the embryo *in utero*, that they only pass a part of their lives within the body. There is, in fact, no direct continuity of such germ cells, as germ cells with the rest of the body. An enthusiastic follower of Beard—Dr. Ford Robertson—traverses Dr. Archdall Reid's position and denies his proposition that "inborn characters are known to be transmissible from parent to offspring." Dr. Robertson says: "This teaching can no longer be regarded as accurate. Offspring, as far as can at present be determined, inherit no character whatever from their parents. Offspring are merely the realization of the developmental potentialities of converged ancestral lines of germ cells. The distinction between inborn and acquired characters has really no justification in modern

scientific fact." Then, too, Dr. Robertson further says: "In regard to ontogenetic evolution" (that is, the development of the individual), "I would add that, although there is no inheritance of parental characters, there is an inheritance of environmental influences, to which, indeed, all that is of any importance in human ontogenetic evolution is directly due. Cut out of man's environment what Professor Karl Pearson terms 'The tradition of acquired modifications,' and his ontogenetic evolution will proceed no further than that of the brute. All the acquirements of literature, art, science, social customs, &c., form an environment to which man's inherent potentialities of development are capable of responding." The very latest conclusions on the subject are those of Hertwig, who contests Weissman's facts and theories as to the dominance and absolute disassociation of the germ and the body. He found that in certain animals almost any part of the body has germinal qualities and so can reproduce the whole body. If his conclusions are true then certain environmental modifications and characters can certainly be transmitted to progeny, which was Darwin's original view.

When original authorities and students of heredity thus disagree in the very essence of their doctrine, the thoughtful lay public may well be pardoned for applying ordinary common sense to the subject, and physicians of large practical experience may be forgiven if they adhere to the generally accepted theory that a bad, ill-nourished mother and a drunken father, through the mere poisoning of the germ cell, will produce between them a bad progeny, which progeny again will, in spite of any amount of favourable environment, often produce a very doubtful stock. As Dr. Robertson says: "Germ cells require to be nourished like other cells. The laws which govern their nutrition cannot be different from those that govern the nutrition of the somatic cells (those of the body) which have arisen

from a germ cell. Professor Cossar Ewart, as the result of practical experiments in hereditary characters, says that the germ cells are liable to be influenced by fever and other forms of diseases that for the time being diminish the vitality of the parents." Dr. Robertson quotes Sevatico-Estense, who mentions the case of a healthy woman married to a drunkard. She had five weakly children, all of whom died in infancy. By a second husband of sober habits she had two perfectly healthy children. The evidence as to the connection through heredity of such brain diseases as idiocy, imbecility, and insanity, through excess of alcohol, is very strong indeed. Dr. Reid, in opposition to this, says that "if alcohol injuriously affected the germs the effects would accumulate generation after generation till the race became extinct." Dr. Robertson replies: "This does not in the least follow, for the contribution from other ancestral lines of germ cells may counteract the tendencies to genetic variation produced by chronic alcoholic poisoning."

One of Dr. Reid's fundamental positions is that disease agencies, poisons, and certain deleterious influences tend, by destroying the weak, the intemperate, and the vicious, to leave a remainder which has acquired an immunity against such destructive agencies. Logically his hygienic rule would be—"There is nothing for it but to let the weak and unfit come to an end." Dr. Ford Robertson vigorously argues that disease is a cause of human evolution through destruction of the weak only in a very limited sense. He says: "Dr. Archdall Reid asserts that diseases of parents do not affect in any way, neither for good nor for evil, offspring subsequently born, at any rate through inheritance, properly so called."

It was right that I should have quoted the opinions of those recent writers on heredity, in its more medical and mental relations, if only to show that this important subject is still in the process of investigation and that as yet

there is much doubt as to whether such definite laws can be laid down in regard to its effects as would be accepted by all scientific and medical men. I may here refer to atavism or the passing over several generations of undoubted hereditary characters, which reappear after such abeyance. It is an important fact in the heredity of unsoundness of mind.

We are all agreed in regard to one important conclusion as to heredity, that is, the fact that hereditary defects may occur in two forms—the one is that of definite provable changes from the normal structure and functions of the human body, such as the small brain and defective mind in many forms of idiocy and of epileptic affections in early life. The other fact is that defects may occur which are not visible in early life or provable either in bodily structure or functional process, being then only tendencies and potentialities. The latter are as real facts as the former, though they may not be demonstrable during any part of the life of the individual. Examples of this are seen in tendencies to mental disease and liability to certain forms of paralysis in individuals or their descendants who at one time seemed to be quite healthy and free from defect. Such are of the greatest interest to the hygienist because in many of them the actual disease is brought out by exciting causes, which might, in many cases, have been avoided or counteracted. That is one of the greatest fields that exists for the work of the preventive and hygienic mental physician. If all defects of heredity were irremediable the future of humanity would be a dark one. I have no sort of doubt, as the result of my experience of forty years of the medical study of disordered and undeveloped mind, that in it a bad heredity exists in a greater degree than in almost any other disease. I cannot doubt, therefore, that in the whole process of development of the brain cell, the vehicle of mind, whether in its strong points or in its weak points or in its

liability to disease, heredity is the dominating factor. On a man's ancestors it mostly depends whether he is to be a fool, a genius, or a madman, or whether he is to be a success or failure in life—in fact, that "determinism" holds good as to every fact in human organization and action. This is not in the least inconsistent with the fact that the brain cell and its function of mind are also more amenable to the effects of environment or education—good or bad—than any other cell in the human body. The two facts are not contradictory but complementary. They both are proofs of the high attributes of the highest portion of organized matter in Nature, viz., the brain cell. They imply the profound influence heredity plays in mental disease and hygiene. No one denies that the germ cell may be poisoned from the body, and most of us now believe that can be influenced in important other ways by the body. A bad nervous heredity usually means mental unresistiveness to the causes of mental weakness and ill-health. The margin of security is less. While a man who has a good heredity may with impunity take many liberties in the way he uses his brain, this is not safe if he has a bad heredity. Looking at the subject broadly and in the light of present opinion, it is safer and more sensible for the mental physician and the public to follow Darwin, Maudsley, and Hertwig than to adopt the pessimistic creed of Weissman and his followers. The one leads to present effort that may be useful, the other to a somewhat hopeless negativism.

There are modes of upbringing, of education, and of conduct in life that should be avoided where a man is specially handicapped by a bad heredity to unsoundness of mind or nervous disease. There are special precautions and attention to physiological law which would save the minds of many men with a bad heredity from passing into inefficiency and actual unsoundness of mind.

When heredity exists merely as a potentiality towards good or evil it commonly needs a special exciting cause

or combination of causes to bring out visible effects. If evil, it is a fate which may be sometimes averted by knowledge and the practice of hygienic law. Everything, of course, depends on the strength of the evil heredity. Any environmental influence which weakens the constitution of the parents or poisons their germ cells, their blood and tissues, undoubtedly in some degree unfits them for parentage. It is a safe working hypothesis, apart from any theories of heredity, to assume that bad environments, mental and bodily, on parents will have a bad and reducing influence on children. Medical instinct and experience, as well as the common sense of mankind, strongly go in support of such an inference. To take precautions is therefore the part of wisdom. They do good apart from any theoretical views; their neglect may do infinite harm to unborn generations.

The following may be laid down as the chief rules of practical Mental Hygiene in its relation to mental and nervous heredity.

1. Carefully ascertain all the facts as to the hereditary defects and tendencies, especially in regard to the brain and nervous system of ancestry and near relations, be they good or bad.[1]

2 Face up those facts in an honest and truthful way, both to yourself and the doctor whom you consult. To conceal or to minimize them is both cowardly and foolish.

3. In forming conclusions and in laying down rules of practice always make considerable allowance for our ignorance of hereditary law, for errors, for atavism, and for Nature's two tendencies—to destroy the very unfit, and to hark back to the ideal.

4. Your patient is entitled to the benefit of the doubt.

5. If there are hereditary facts endeavour carefully to estimate their quality, strength, and import. Some such facts are strong and unmistakable, others are slight and of small import.

[1] *The Hygiene of Mind*, by the Author, 5th ed.

6. Where the heredity is bad let a careful examination be made into the bodily form, functions, and mental faculties, to ascertain if there are in any of them existing defects that can be seen and proved. Are the size and shape of the head normal? Are the ears, eyes, and facial features symmetrical or irregular? Are the muscular actions, especially that of the mind-muscles, the gestures, and the attitudes of the body, normal? Are the reactiveness and sensitiveness of the brain too high or too low? Is there any precocity or backwardness of brain and mental functions? Are the moral feelings and social instincts changed? Are there any peculiarities or idiosyncrasies in the person examined? Are all the sense organs normal in action? The results of such an examination may give valuable indications.

7. Supposing there are no visible hereditary defects of form or faculty, there still may be deadly lurking tendencies to mental evils. I have seen young persons of almost ideal physical characteristics who became subject to attacks of nervousness or mental unsoundness that were clearly hereditary in character, or who entirely failed in aptitude for doing their work, or who became vicious from obviously psychological peculiarities, or who became weaklings or nuisances to society from purely hereditary brain defects.

8. It may be held as certain that bad environments, bad education, bad food, bad air, unsuitable occupation, mental shocks and stress, the effects of disease, unsuitable marriages will all bring out latent tendencies towards mental inefficiency or unsoundness. Many of these could have been avoided or counteracted if sufficient knowledge of hereditary laws and risks had been acquired at early enough periods in the lives of the persons affected.

9. It must be kept in mind that hereditary defects act as "weakeners of the defences," through which mankind resists disease and death. Many of the so-called bad

symptoms and evil effects of disease really result from Nature's attempts to counteract and heal. Physiologists and physicians now know that we chiefly die, not from disease, but because our defences against the innumerable enemies of our lives have become weakened. "Strengthen the defences" has therefore become a prime motto of the hygienist. To over-press and to over-educate the brain of a child in whose family insanity or neurasthenia exists may be to diminish the defences of its body, and to bring on diseases which by other modes of education, or the want of it, might have been avoided.

10. All biologists and every practical physician recognizes that atavism prevails extensively in health and disease and that there may occur in succeeding generations traits of body and mind that there were seen, not in the fathers and mothers of men and women, but in their grandparents and great-grandparents, and much further back. I have seen a special form of mental disease reappear in the fourth generation that had not affected the intermediate members of the family. This must ever be kept in mind by the practising doctor who wants to understand his cases.

11. Bad heredity prevails largely in the least marked of all the mental unsoundnesses, namely, that which takes the form of mental depression without intellectual change. I have seen three successive generations of melancholics, all above the average in intellect, with a strong suicidal tendency in each. It prevails also, and still more largely, in the cases which exhibit undue mental exaltation and excitement. It is common, but perhaps not so common, in the cases that pass into conditions of mental delusion, and irrational belief with lack of judging power. It is almost universal in the developmental forms of the disease. Where cases pass into incurable and lifelong conditions of weakness of mind (dementia) at an early period of life, it is practically

universal. In the mental breakdowns of decadence and old age it is perhaps least common of all, for in them diseases of the blood-vessels come in strongly as a cause.

The following are some of the general rules by the application of which bad mental and nervous heredity may be counteracted. Feed and strengthen the body by every possible means during childhood and onwards. Do not over-stimulate or over-educate or over-press the brain. Retard rather than stimulate the development of its higher functions. Let them lie fallow. They will appear in time in a stronger and healthier form for this process. Watch most carefully the periods of puberty and adolescence. Select occupations that are outdoor, routine, unexciting, and generally wholesome. Observe heedfully the moral, the social, and the religious influences to which such an individual is subjected. Avoid the risk, as far as may be, of bad example. Do not be tempted, by early acquirements, quickness, and talents, to think that there is, on that account, no risk of hereditary evils. Very much the contrary is often the case. The same symptoms in detail are not commonly seen in successive generations of mentally afflicted, though in most cases the tendency is that the mental unsoundness appears in a deeper and less curable form in each succeeding generation. Two great French psychiatrists, Morel [1] and Moreau de Tours,[2] trace the degenerative morbid mental processes down from genius to idiocy, from hereditary and environmental causes. I have traced the same series of hereditary morbid sequences through the stages of mental hyper-activity, hyperæsthesia, diminished inhibition, instability, melancholia, mania, alternation, insanity, secondary dementia, down to idiocy, each of those appearing in each successive generation.[3]

[1] *Traité des Dégénérescences Physiques, Intellectuelles, et Morales de l'Espèce Humaine*, B. A. Morel.
[2] *La Psychologie Morbide*, J. Moreau (De Tours).
[3] *Clinical Lecture on Mental Diseases*, by the Author, 6th ed.

Statistics.—The statistics of the actual occurrence of heredity in the patients afflicted by unsoundness of mind vary enormously as given by different authors, the range being between 20 and 90 per cent. This results chiefly from two circumstances. The one is that the opportunities of making inquiries into family histories is often most imperfect. The facts are commonly concealed or denied with extraordinary pertinacity. The disease is regarded as a blot on a family. In public mental hospitals, from which most of the statistics come, the family history of most of the patients cannot be fully obtained, especially among the poor. The second circumstance is that the allied diseases of the brain and nervous systems, occurring in families, are not usually taken into consideration. Yet they are almost equally important hereditarily with the mental disorders. If there is epilepsy or convulsions, paralysis or chorea, hysteria or somnambulism, asthma or dipsomania in any family, it shows a nervous tendency which, not uncommonly, is also the basis of mental unsoundness in some of its members. If I took my personal experience I would say that there exists an unfavourable nervous or mental heredity in far more than half of the mentally unsound, that there is a psychopathic constitution in three-quarters of them, and that when the disease appears in any form under twenty-five years of age I have found a neurotic heredity existing in almost all of them, if a really reliable family history can be obtained. This fact comes out most forcibly in the cases whose family history I have myself had the means of definitely knowing. The more we know of the family antecedents in any such cases the more surely we find proofs of nervous heredity.

It is a fact founded on statistics that the maternal heredity towards the nervous diseases, but especially towards mental unsoundness, is stronger than the paternal. The effects of heredity tend to cross the sex ; *e.g.*,

in the case of a mentally disordered father the daughters run more risk, while in the case of the mother the sons are more apt to be affected than the daughters. My observations tend to show that in the case of men, in from 60 to 70 per cent. the tendency to unsoundness of mind and nervous disorders comes from the maternal side. It is fairly well proved also that men of talent and genius usually have had "clever mothers." What an unscientific proceeding it is to give family genealogies of the men only, as is most commonly done!

Inbreeding.—Much is said about the evil results of inbreeding. Those certainly happen if there is any bad strain in the stock. Galton says that all domestic animals show signs of delicacy and deterioration if long inbred. Through the marriage of cousins in that case the evil tendencies are quadrupled in the children. But if the stock is absolutely faultless, a rare occurrence, no harm comes of the marriage of blood relations. In fact, an extra good stock may thus result. When Ptolemy the First, at the death of Alexander the Great, received the government of Egypt as his share of the then known world, he and his descendants adopted the Egyptian custom of the reigning monarchs by always marrying sisters or cousins or daughters. There were thirteen Ptolemys, all able rulers, who ruled Egypt for nearly three hundred years, and the race culminated in the production of one of the most beautiful women of the world, Cleopatra, who fascinated Cæsar and lured Mark Antony to his ruin. She was not only the most beautiful but also one of the ablest women of the world.

Many psychiatrists of authority, notably Maudsley and Mercier, do not agree with the opinion that it would be a good thing for the world to interfere with the marriage of persons hereditarily predisposed to nervous diseases, chiefly on the grounds, that the laws of heredity

are as yet uncertain and that genius has frequently cropped up in children of such marriages. It comes to be a question whether the world is fully compensated for a hundred thousand degenerates, with all the harm they do, by a genius in a generation.

CHAPTER VIII

CERTAIN PREDISPOSING CAUSES

IMPERFECT EVOLUTION; TEMPERAMENT AND DIATHESIS; UNRELATIONAL DEVELOPMENT OF THE BRAIN AND THE MENTAL FACULTIES; AFFINITY; INCREASED, DEFECTIVE, OR PERVERTED BRAIN REACTIVENESS; SUDDEN CHANGES IN ENVIRONMENT; UNSATISFIED LIVES; THE CRISES OF LIFE.

Imperfect Evolution

THERE is one subtle and far-reaching cause of mental unsoundness—the furthest reaching of all, I believe—which is not commonly realized as it ought—that is, failure or defect in that evolutionary process through which the human brain has attained its commanding positions in Nature. This has been attained by an infinitely slow process. In the course of its attainment millions of the unfit of every class of living things, from the lowest to the highest, have succumbed. Every species has had slowly to adapt itself to its environment, and myriads have died out in the process. This age-long action, ever going on in the past, and now taking place around us in life in a thousand ways, has left probably more traces of its existence in the human brain, its last and most perfect product, than in anything else in nature. It is not Nature's way to create any of her machinery, or any individual or species, perfect at once, without innumerable failures and mishaps by the way, and in this connection must be taken

into account the curious but real facts of reversions, the reappearing of forms and qualities that have pertained to ancestry ages past. Many forms of mental unsoundness and defects are, I believe, due to such reversions, or are themselves examples of evolutionary failures to attain a perfect adaptation to present environments. It is a well-known fact of experience that it is a very risky thing to the mental soundness of the individuals of a primitive people to transfer them suddenly into the life of a modern city of Europe. They constantly break down under those circumstances in mind, or self-control, or capacity to resist harmful temptations. The red Indian's incapacity to resist fire-water is an example of this evolutionary defect. Some forms of unsoundness of mind are really more examples of Nature's evolutionary unfitness than of disease in the proper sense of the term. They are examples of reversion to former ancestral types.

Many of the delusions and morbid states of mind of the unsound are almost identical in general character with the beliefs and the superstitions of the primitive man, and are also analogous to the crudities of belief and impulses of the boy in civilized life. Mr. Bagehot in his *Physics and Politics* has a very instructive chapter as to the analogies of primitive men and civilized boys in beliefs and conduct. I would bring into the same scientific circle of analogy certain cases of the unsound of mind. No insane delusion could be less founded on reason than the ideas of those two classes in regard to "luck" and "omens," and the way in which the conduct of one individual can act on others or on a whole community. The mode of governing the three classes also necessarily implies the absence of what we now understand by liberty. The instinctive as opposed to the reasoning character of those false beliefs are common to all the three classes. In the primitive man the false beliefs and strange conduct resulted from an imperfect evolution of the human brain, in the boy they result from an im-

perfect development, and in the unsound of mind from an occasional reversion to a primitive condition.

The large class of cases where there is from the beginning a lack of mental control and inhibition, many cases of moral imbecility, many cases where the social instincts have been from the beginning so rudimentary that the persons had no real desire to hold intercourse with their fellow-creatures, or to be associated with them in any way, are mostly examples of this defect of evolution. The mental unsoundness or defect may be ontogenetic, or phylogenetic—that is, they may be the result of individual or racial non-development. Many cases of what I have described under "adolescent insanity," and Kraepelin under "dementia praecox," are also, I believe, examples of evolutionary defects. Those cases attain, up to the age of eighteen or so, a certain development of mind in an apparently normal way, but their development is then arrested and they fail to attain those higher and essential qualities of mind and social dispositions which fit them to be suitable members of an organized society, and to be suitable fathers and mothers of a future generation. The higher morality, as we understand it, among advanced nations was undoubtedly the last mental quality to appear in the course of human evolution. Evolution just fails at the moral qualities in some individuals, when in all other respects they are well developed, and in many other cases, as pointed out by Dr. Savage, when a diseased or degenerated process has begun in a human mind, it is the moral qualities that suffer first, apparently because they have been the last to be developed. Holmes long ago said that there were certain cases of disease which, to cure effectually, the treatment should have been begun two hundred years ago. For the class of case to which I refer the treatment should have been begun a hundred thousand years ago. There are cases of idiocy which in bodily and mental characteristics are so manifestly like some of the

lowest of the lower animals, that they have been called "theroid."

Temperament and Diathesis.—Among the predisposing causes of unsoundness of mind temperament and diathesis may well be put down—not that any of the temperaments or diatheses necessarily lead to or end in that condition. Galton made a careful inquiry into human faculty and its development in order to settle some questions which lie at the root of the doctrine of temperament on scientific lines. The general "make-up" of a man, the shape of his head, the appearance of his eyes, the mobility of his features, the texture of his hair and skin, and the quickness or slowness of his movements, in addition to his mental characteristics, are taken into account in the determination of his temperament. Hippocrates, the father of medicine, divided temperaments into the sanguine, the phlegmatic, the bilious, and the melancholic. Modern science has changed the name of the melancholic into the "nervous temperament." Persons of this, which is the dangerous temperament as regards unsoundness of mind, are, in some cases, "nervous" in the medical sense, highly strung, over-sensitive, feeling pain keenly, tolerating it badly, subject to dyspepsia and to insomnia. They are quick in their mental action, imaginative, keen, ever alert, fine in the grain, capable of doing an immense amount of work at a time, but deficient in self-control, and apt to use up their spare nervous strength. They are often artistic in feeling, ambitious, and with an ill-concealed contempt for fools. When run down they are "ill to do with." The diseases to which they are specially subject are nervous and mental, and every other disease they suffer from is coloured and affected by their temperament. When their blood is poisoned it is apt specially to affect the brain. In them the brain and mind are dominant above all other organs and faculties. When a man of this temperament is long subjected

to the hurry, competition, and perpetual excitement of modern life in a city, with its newspapers, telegrams, and small time for rest and introspection, he is liable to become depressed or unduly excited. This temperament has its special temptations. Excess of alcohol and sedative drugs are two of them, and they are very dangerous to it. The man drinks not always for social reasons, but for the sake of the direct effect of the alcohol on the brain. He is liable to become an habitual drunkard, with an uncontrollable craving for other stimulants and drugs, which itself is one form of unsoundness of mind. He also frequently craves for unsuitable diet. When he becomes unsound of mind it frequently takes the form of melancholia, but in some cases of exaltation or an alternation of both conditions.

The late Professor Laycock was the first in this country to lay stress on the doctrine of diatheses. This means more than temperament. It implies an actual tendency to definite forms of disease. There are certain people who have a distinct tendency to rheumatism, others to disease of the heart and blood-vessels, others to be infected by the tubercle microbe, constituting the rheumatic, the vascular, and the tubercular diatheses. Particularly there are those who are not only nervous in temperament, but have the seeds of actual nervous disease to which they are nearly sure to fall victims. These are called persons of the nervous diathesis, and unsoundness of mind is one of the neuroses to which some of them are specially prone.

Unrelational Development of Brain and Mental Faculties.—There is another predisposing cause of mental unsoundness which has not received the attention it deserves. It might be called the unrelational development of the brain functions and the mental faculties. The various functions of the brain and the mental faculties are normally developed in a certain physio-

logical order. What I mean by unrelational development is that such physiological order is markedly disturbed. It may be said generally that the functions of the brain and the faculties of the mind are developed in the order of their importance to organic life. The power of suction by the mouth is undoubtedly one of the brain faculties which are developed before birth, so that when that all-important crisis of life arises the child is able to obtain nourishment from its mother's breast without any teaching, and without any stimulus except that given by the sense of touch by the mouth. Accompanying this there is a quite definite evidence of the sign of pleasure, which may thus be said to be the first mental faculty seen. Whether that pleasure can be said to be conscious or simply automatic or organic, its importance to the future life and well-being is manifest. It stimulates the motor act of sucking and so leads to life being preserved. It may be described as the first of the acts which culminate afterwards in desire and craving. It is the foundation of all the organic satisfactions which are so dominant and important for good and evil from birth to death. It leads to the more complicated pleasures of existence. It tends especially to an association of the feelings experienced with the persons or things which produce those pleasures, so that gradually emotion, attachment, and love are produced and strengthened towards certain individuals. The first physical sign of real mind is when the child begins to smile when it is about forty-five days old. The connection of the mind-muscles in the face and eye with emotion are then exhibited. Mind and muscle from that time forward work harmoniously in the normal individual. Speech begins in the shape of vowel sounds when the child is about three months old. This implies a much more elaborate connection of mind and muscle and is of far greater importance in man than even the muscular expression of the emotions, for speech is the characteristic of man

alone. Sympathy is shown at six months old, then comes jealousy, the green-eyed monster, at about fifteen months of age. Anything that can be called reason is only seen after a hundred days have elapsed. The protective instincts which are needed to preserve life come on at about four months. The child shows this first by not doing over again an act through which it has suffered pain. This is the first marked conscious exhibition of the great and primary instinct of all living things—namely, the love of life and actions for self-preservation. Showing the contrast between man at four months old and a fully developed fish, a grown-up pike when placed in a glass reservoir of water, for four whole months would dash himself against a plate-glass partition, which was placed between him and some minnows in the same vessel, stunning himself each time, but making those unreasoning attempts to secure food that was needful for his life in spite of those failures. But after thus learning that this attempt to secure such food was causing more harm than good, he would then cease to attempt to attack them when they were placed in even the same division of the aquarium with himself.

On the full development of self-control depends practical morals. This comes into greatest power only towards the end of mental development, towards the age of eighteen to five-and-twenty. Indeed, it may be said to go on developing in many persons all through life. It becomes transformed into will-power, which is admittedly the crowning mental force of humanity, being so linked with consciousness that it becomes the highest part of the metaphysical *ego*. Through it, or its absence, one man is a master, while another is a servant. Through it one race becomes the conquered and another the conqueror. One man is the incarnation of deity and another the incarnation of the devil. One man is a force for all that is good and another for all that

is evil, while another is a mere cipher among his fellows, with no influence over them.

The mental faculty of fear arises early, and that is also highly preservative to life and safety in mankind. The great faculty of imitation comes on very early in the child, certainly before the first year is out. Without that education, muscular, mental, and moral, could not take place beyond a certain point. The sex instinct comes with the reproductive energy at puberty. It is the instinct which in power and in the direction of human life comes next to that of self-preservation.

If this natural order of the development of those faculties is interfered with there may arise technical unsoundness of mind, or a condition that cannot be distinguished from it. If the emotional and affective faculties do not appear in proper time the child is left with the chief motive of life in abeyance, and so becomes asocial, unattractive, and finally bad, criminal, and conscienceless. He becomes such a pest to society and so dangerous that he must be segregated from his fellows as a "criminal lunatic," if he has not been hanged as a murderer. He is morally insane.

If speech is too long delayed mind suffers markedly. Abstract ideas are not acquired, and unsoundness of mind results from want of power to acquire the words that lead to the habit of reasoning and the conduct which reasoning serves to regulate. I have seen a child who was not able to speak at eight years of age, and its mind was mostly in the condition of an average child of two. Fortunately in that particular case the speech development turned out to be only postponed, and she was all right at about ten or eleven. If the faculties of caution, fear, and self-control are not developed at all, or are too long in making their appearance, it is likely that the boy or girl, especially the boy, will get into all sorts of trouble and danger, and may lose his life in consequence. I have seen many persons who

had no conscious love of life at all. They did not fear death or the accidents that might lead to it, and in consequence did not take proper pains to preserve life, and might thus be said to suffer from a certain kind of unsoundness of mind in a very dangerous way.

If the social instincts do not develop rightly we have an abnormal man or woman resulting, who does not fulfil some of the primary and necessary duties of an organized and mutually dependent society of human beings. Many cases of marked unsoundness of mind show as their chief symptom a paralysis of the social instincts. Going into a mental hospital for the first time, nothing has struck many observers so much as the apparent social isolation of its inmates. They do not talk to each other. It is no pleasure to them to be associated with their fellow-creatures. Many of them do not play games, and they cannot combine for any purpose. This condition may be congenital.

If the sex feelings and reproduction are developed too early they may lead to actions which must often be treated by restraint on the ground of such mental unsoundness. I have met with several such cases where the conduct was that of a dog. Strong sexual feelings in them preceded the power of inhibition needed to control them. The two things have been developed unrelationally, thus constituting an unsoundness of mind. If they are unduly postponed, or never develop, this leads to an unnatural mental condition where the ideals, the imagination, and the artistic faculties do not come into the life, and so a mild unsoundness is the result. Some physiologists say that the forces always precede in time the inhibitory centres that control them, but I think both appear at the same time when development is truly "relational."

Affinity.—There is a considerable amount of unsoundness of mind which arises through that law which French authors call "Affinity." This means that persons

of the nervous disposition are apt to be attracted towards persons of the same temperament by a special sympathy, so that such men and women are apt to fall in love with each other and marry those like themselves in this respect. The result is that still more marked nervous and mental peculiarities are apt to appear in the children of such couples, and sometimes this goes on to actual unsoundness of mind. Such a tendency is sometimes exaggerated in each succeeding generation. This would be still more common, however, if there did not exist the other tendency to mate with opposites, the big with the small, the dark with the fair, and the nervous with the phlegmatic. Unfitnesses and peculiarities of all kinds have their opposites, and it seems to be one of nature's modes of producing averages thus to set up sexual attraction between opposites.

Increased, Deficient, or Perverted Brain Reactiveness.—All sound mind and all reflex action of nervous origin depend on the quality of normal reactiveness in the brain and spinal cord and the other nervous ganglia and centres. What is meant by brain reactiveness is its capability of responding by thought, feeling, muscular movements, or glandular and nutritive acts to stimuli from without the body or from within it. In a normally constituted organism the amount of the reactiveness depends on the kind, the quality, and the strength of the stimulus applied. The brain sympathizes, as it were, with favourable stimuli that impinge on it, and it resists and antagonizes those that are unfavourable. Plants react by movement and nutrition to light, air, heat, moisture, and soil, and thrive under such stimuli. The lower kinds of animals, such as fish or frogs, respond to many more stimuli than plants, while the higher animals react to a still larger number, and in a higher degree, than such cold-blooded animals. In man's brain there is a power of reactiveness to almost everything in heaven and earth. Some animals possess an acuter

power of reaction in some things than man, but none of them compare with him in range and delicacy, taking all the modes of nervous reaction together. We do not smell like the dog, nor do we see like an eagle. We do not possess the power of perceiving and reacting to such subtle stimuli as the weather, atmosphere, and orientation in the same degree as many wild animals. The range of an animal's reaction to stimuli is mostly limited to food, sex, and self-preservation. Our power of reaction, on the contrary, may lead to memory-images of vast extent, to new ideas, and to the creation of new scenes by means of the imagination, and these in turn act most powerfully on our volition, our movements, and the general conduct of our lives.

The passions, good and evil, should not usually produce overpowering action, yet they should always have some effect subjectively or objectively. Because a man has spat on your carpet you must not shoot him; but because he has struck you on the one cheek you do not automatically turn the other.

The chief stimuli which produce reactions—mental or bodily—in the human brain are light, sound, colour, smell, taste, touch, air, heat, cold, electricity, music, harmony, books, sex, the beautiful, the terrible, the sublime, our emotions and imaginations generally, the actions of our fellow-men, the conditions of our bodily health, and the general working of the brain itself. The subtle but continuous "reflex" influences on brain and mental actions of the unhealthy or healthy working of the skin, the lungs, heart, and the stomach are very powerful. Whether they proceed to unsoundness of mind depends on the innate qualities of the brain acted on and the strength of the stimulus or irritation. Many unfavourable mental stimuli produce poisons in the digestive tract, and so affect the reactiveness of the brain and mind. In certain kinds of indigestion, for instance, toxins are produced in the stomach, and from that reach the brain,

and may cause mental changes, and even unsoundness of mind. In certain other conditions injurious microbes are developed on the mucous membranes of the bowel as the result of constipation, improper food, want of exercise, &c., which, reaching the brain, so alter the normal reactiveness that brain and mental disorder result. The morbid reactions of sex and reproduction are especially powerful in affecting moral action and emotional conditions, and so producing in many cases unsoundness of mind. The want of food or improper diet has often affected not only individuals but races, with a deadening of their reactiveness to pity and justice, so that crime, cruelty, and revenge have held unchecked sway among them. It was not only theories of "Liberty, Equality, and Fraternity" that set up the reaction of the Terror during the French Revolution, according to Carlyle. The quality of the blood circulating through the brain deeply affects its mental reactions. Such reaction, if excessive, may lead to mere irritability or entire loss of self-control, to unsoundness of mind, and even violent delirium.

The mind may suffer not only through an excessive reaction to stimuli bodily and mental, but it may also suffer through a deadened reactive capacity. In certain cases of nerve exhaustion heat and cold are not felt and produce no efforts to obtain coolness and warmth; hunger and thirst do not stimulate attempts to get food or drinks, and sex no impulses to satisfy its craving. The sight of those nearest and dearest may not produce pleasure or signs of affection in face or eye. The brain reactiveness is deadened in all those cases and a state of unsoundness of mind results.

Brain and mental action may not only be quickened or deadened, but it may in other cases be completely perverted, so that stimuli which would normally produce happiness or exertion, or unhappiness and want of action, have exactly the opposite effect. The presence of friends

and relations may cause acute pain with its signs in the face, danger may cause happiness and active efforts to suffer by it, the sight of appetizing food may arouse distaste, sunshine may produce gloom, and the sight of a child by its mother may arouse homicidal impulses towards it. It may be said, in fact, that a man's appearance, his feelings, his speech, and his conduct—in short, his soundness of mind—may depend wholly on the reactiveness of his brain at the time.

There exists what Ramon Y. Cajal calls the "Law of Avalanche" in the brain—that is, the law by which a slight impression enlarges itself and a localized stimulus or irritation travels far beyond its natural course. This law is found to apply in regard to brain reactiveness. A very slight impression indeed, such as a few words from a friend, may enlarge and be magnified and perverted, so that it will actually cause general unsoundness of mind through this law, if the brain happens to be unduly reactive and explosive. I have known a complete reversal of a kindly disposition, so that a man became suspicious, irritable, and delusional, imagining that there was a conspiracy on the part of everybody against him, to result from an unintentional slight on the part of a friend. I have known a prolonged period of insomnia to arise out of the worry caused by having to do a bit of slightly disagreeable business. I knew a lady who became melancholic through the death of a favourite dog. The experiments of Verworn seem to show that the excitability—in other words, the normal reactiveness of the whole nervous system—always implies the presence of oxygen in its protoplasm.

Such morbid changes in brain and mental reactiveness are almost always misunderstood by a man's friends and relations. It is naturally assumed that the man "could have helped" those conditions and that he is responsible for them. There is need for the exercise of a wide and rational charity in judging of the speech and

conduct of our fellow-men. Those may result solely from abnormal conditions of brain and mental reactiveness. No one becomes so scientifically charitable as the student of brain and mind.

Abnormal Stimuli and Sudden Changes of Environment.—We have to take into account not only the reactiveness, but the strength and the kind of stimulus which is liable to upset the mental working of the brain, and we have also to consider in many cases the abnormal character of such a stimulus. An abnormal stimulus will sometimes upset the working of a normal brain. For example, an apparently healthy woman who had lived all her life in an isolated lighthouse was suddenly brought to Edinburgh, and was the day after she arrived there taken to see Queen Victoria going in procession through the streets, she forming one of a vast crowd closely packed. She had no sleep that night, got violently excited, and next day passed into a condition of acute mania. This state was, no doubt the direct consequence of what was in her case a very abnormal stimulus to an over-sensitive brain quite unaccustomed to such cause of upset. She could not even have conceived such a concourse of men and women, and the effects of this on her brain was violently disturbing. Or to take another case—a woman was the witness of a brutal murder, and within a short time she was in a condition of maniacal excitement. And to take another case. It was noticed during the prolonged siege of Vienna by Napoleon that a large number of persons became insane from the terror, the noise, and the falling of the shells into the streets of the city. It has frequently been observed that women subjected to rape have become insane afterwards. Especially rape on white women by negroes in the Southern States of America is apt to be followed by a marked change in their mental condition, and frequently by actual unsoundness of mind. If the abnormal stimulus is that of "Shock," *i.e.*, if it is very intense,

altogether unexpected and sudden, the mental effect is apt to be more certain and more marked. The so-called post-connubial insanity frequently comes under this class of causes. In all those cases, however, the brain reactiveness was probably somewhat acute. One of the most typical and best known of the conditions produced is "nostalgia," or morbid home-sickness, where the patient after leaving home becomes depressed, lethargic, and often suicidal, being unfit to do ordinary work. I have known persons who became thus affected by going to India to reside, by taking to a different daily occupation from what they were accustomed to, and by their having suddenly to lead a completely isolated life away from their fellow-men. Many of the Highlanders and Islanders of Scotland are notoriously subject to nostalgia when they leave home late in life.

Unsatisfied or Over-stimulated Lives.—There are some cases of unsoundness of mind which result from unsatisfied lives, especially if the deprivations affect the social instincts or the organic and primary demands of life. Human nature is such that gregariousness, a reasonable social intercourse with fellow-beings, and a satisfaction of the mental ideals and of the organic cravings are commonly necessary to a complete mental soundness. The isolation of a human being from his fellows is known to be a destructive process to sanity. The solitary confinement of our prisons had to be given up for this reason. There is a form of mental unsoundness which sometimes takes grotesque forms, which is met with in single women who have to lead solitary lives. It usually takes the form of morbid suspicion, hearing imaginary voices, and taking to the worship of cats, dogs, parrots, and other pets. Or it may take the form of imagining proposals of marriage, suspicions of sexual assaults, or perversions of simple words into insinuations against moral character, &c. Taking to the wrong profession or sphere in life may absolutely change the life so that un-

soundness of mind may result. A man always runs more risk if he spends his life doing uncongenial work, especially if he has an innate craving for something else.

Too Much Excitement.—On the other hand, the brain can be subjected to too great excitement and to an eternal whirl of social dissipation, with bad effects to its soundness. There are certain occupations which, in my opinion, persons with a hereditary tendency towards mental upset should not take to, such as stock-broking and other semi-gambling avocations. It is a curious fact that politics, with all their excitement and the constant political talk that everybody indulges in, very seldom so upsets the human brain that insanity results. This shows that politics do not commonly touch the roots of human nature, that the feelings about them are comparatively shallow and evanescent, and that their quarrels are largely skin deep. In my experience I have come across very few patients indeed who owed their mental unsoundness to political excitement.

When in any community there is a large class to whom prosperity always means excessive indulgence in excitement, dissipation and defiance of natural and moral law, it means that either a higher sort of education is needed or that a tendency to degeneration may set in. Mental inhibition is really the salt without which social decay and mental unsoundness are inevitable, and if it were exercised in sufficient amount we should have little unsoundness of mind from either unsatisfied or over-stimulated lives.

The Crises of Life.—The great crises of life—birth, babyhood, childhood, puberty, adolescence, marriage, child-bearing, nursing, the turn of life, and senility—are unquestionably trying in many cases to the brain's equilibrium. The morbidness of mind and nerve which are liable to occur in some persons at those crises of life cannot be understood except we have carefully

studied the normal physiology and psychology of those periods. Those crises and physiological periods of life are frequently not got through in the normal way. Birth or babyhood may be complicated and interfered with by convulsions which arrest and disturb the due mental development of the brain so that imbecility or epilepsy result. The great epochs of puberty and adolescence fail to be got through in a natural way, and we have in consequence attacks of brain explosions, morbid exaltations, morbid depressions, morbid imaginations, which upset the soundness of mental action. There are a whole series of what I have called "Neuroses of Development" [1]—that is, nervous troubles great and small, which are liable to affect the unfortunate human brain during this period, many of which are attended with more or less unsoundness of mind. During that time Nature is endeavouring to build up the organism, not only as a fit machine to do its work in life, but to prepare to transmit the species to future generations in a sound and healthy sequence. For this ultimate perfecting of the whole organism each organ has to attain individual perfection—the muscles, the digestive apparatus, the internal glands, and the brain with its multiform functions and its dominating position. The portentous list of nervous and bodily diseases and deficiencies that are liable to spoil this period of life are most of them due to a bad nervous heredity. From a philosophical point of view they may all perhaps be looked on as Nature's attempts, some successful and some futile, to bring bad stocks to an end, and to establish a physiological and psychological ideal of more or less suitability for the race of the future, after eliminating all the diseased and the unfit, during this preparatory period of adolescence. Adolescence is the most momentous of the physiological or what has been called the biological periods of life in regard to the liability of unsoundness of mind.

[1] *The Neuroses of Development*, by the Author.

The climacteric period, when reproductive power is passing away, and old age, when the blood-vessels become brittle and the brain shrinks in bulk, are also important crises of life in their relation to unsoundness of mind. Child-bearing has many risks to mental stability.

There are few facts which better illustrate the essential unity of body and mind than what often takes place at those crises of life. I shall afterwards speak of them in detail in their relation to the forms of unsoundness of mind.

CHAPTER IX

MENTAL CAUSES; RELIGION

INSTINCTIVELY human nature will endeavour to fix on a mental cause for a mental effect. That is very well seen in the ordinary newspaper paragraph regarding any case of suicide. It almost commonly concludes with such statements as these—"His affairs have been lately in such a state of embarrassment as to cause great anxiety," or, "She had had severe family losses lately which had upset her mind," or, "He had been in good health and spirits up to the time of the act, and there was nothing in his business or otherwise that accounted for it." This expresses the ordinary popular theory of the only possible causes of mental unsoundness. An act has been committed which implied a bad mental resolution, therefore a mental cause alone must inevitably have existed to account for such an act. This theory, simple and natural as it seems, is, as a matter of fact, wrong in four cases out of five. If there has been mental worry or stress, the probability is that this worry has been merely the initial stage of mental unsoundness, and not its cause at all. The real cause—that is, the exciting cause—is to be looked for usually not to any immediate affliction or loss or calamity, but to something further back. I would desire to say here once for all, that it is not work which commonly leads to mental unsoundness, but if there is a mental cause at all it is some form of worry or stress. If we have means of

looking back minutely into the lives of persons who have become mentally upset, and mental causes are assigned, we shall find most likely prolonged periods of unfitting and unsuitable environment, or daily irritating conditions of existence. A child has had prolonged ill-health or has died suddenly, there have been family disagreements and hitches, there has been an innate want of sympathy between husband and wife, between father and children, and between brothers and sisters. There have been incompatibilities of temper rasping life like a file. There have been prolonged secret courses of evil conduct, the public exposure of which would have caused scandal or poverty. The strain of making both ends meet has been too severe. There has been a skeleton in the closet for a long time. There has been some instinctive fear or dread of calamity, existing perhaps without much cause, but none the less of a strain on that account. The social instincts have been keen but unfulfilled, or they have been absent, and therefore the life has been one-sided.

Mental unsoundness is a thing so striking, so unexpected, and so obscure, that a cause for it is urgently demanded, and often enough anything will do. A cause will be invented if there is not one to hand. The most trivial event that precedes the attack; things that took place many years ago; incidents that could have no possible connection with it are eagerly fixed on, and give a certain satisfaction to human nature as possible causes.

It is naturally asked why or how a mental event can influence a physical condition of the brain cell. This whole problem needs a great deal of clearing up yet, and when we go down to the bed-rock of the question, which is the relation of consciousness to life and organization, we must as yet accept Spencer's opinion that the absolute connection between the two is "unthinkable." That conclusion does not, however, prevent us tracing the laws which manifestly connect the two, which

regulate their dependence on each other, and their relation to each other. The problem is analogous to the problem of the relationship of energy and matter to each other in physics. No one denies that they are absolutely distinct, but equally no one doubts that they have fixed relations to each other. All forms of energy require what we still call matter for their development; and even if we accept the most recent idea of the physicists that matter can be reduced ultimately to electrons in a state of perpetual motion and intense electrical activity, yet heat and light must always be regarded as things different from coal. Mind may be theoretically assumed to be the highest form of energy known to us, even if it is something more in its essence, and this applies to consciousness, which implies personal individuality and the *ego*.

The Emotions.—Before we can in any way understand morbid mind and its relation to morbid brain we have, as we have seen, to consider normal mind in its relation to normal body. That the body is influenced by the mind is so evident a proposition that it has not been doubted from the earliest times. Neither savage, nor philosopher, nor the man in the street, has ever questioned it. That bad news will alter the appearance of a man's face, and eye, and attitude, or stop the feeling of hunger is a truism. That good tidings will alter a man's mien and actions is equally certain. That faith will bring joy, cure disease, and "remove mountains" is a fact of everyday experience. That continued want of success in life will make a man thin and alter the nutrition of almost every tissue in his body is seen every day in actual life. That the active exercise of mind will flush the brain with blood and be succeeded, if continued long enough, by feelings of bodily fatigue and exhaustion, loss of appetite, diminution of muscular co-ordination, and alterations in the appearance of the face and eye, has been proved abundantly by physio-

logical observers. That cheerful mental influences and conditions give the power of resisting and even curing certain bodily diseases is becoming an accepted fact in modern medicine. The relation of the emotions to the muscular action in the face was the thesis of one of Darwin's most convincing books.[1] The latest theory in regard to the emotions put forward by James, and illustrated by Ribot, two of our foremost modern psychologists, is that emotion is not felt by consciousness until it first produces those bodily changes which we have hitherto spoken of as "the expression of the emotions." "My theory," James said, "on the contrary, is that the bodily changes follow directly the perception of the exciting effect, and that our feeling of the same changes as they occur, *is* the emotion. Common sense says, We lose our fortune, are sorry and weep; we meet a bear, are frightened and run; we are insulted by a rival, are angry and strike. The hypothesis here to be defended says that this order of sequence is incorrect; that the one mental state is not immediately induced by the other, that the bodily manifestation must first be interposed between, and that the more rational sentiment is that we feel sorry because we cry, angry because we strike, afraid because we tremble, and not that we cry, strike, or tremble because we are sorry, angry, or fearful, as the case may be." "Every one of the bodily changes, whatsoever it be, is felt acutely or obscurely the moment it occurs." "If our theory be true, a necessary corollary of it ought to be this—that any voluntary and cold-blooded arousal of the so-called manifestation of especial emotion should give us the emotion itself. Everybody knows how panic is increased by fright, and how the giving way to the symptoms of grief or anger increase those passions themselves. In rage, it is notorious how we work ourselves up to a climax by repeated outbreaks of expression. Refuse to express the

[1] *On the Expression of the Emotions*, by Darwin.

passion and it dies. Count ten before venting your anger, and its occasion may seem ridiculous. Whistling to keep up courage is no mere figure of speech. On the other hand, sit all day in a moping posture, sigh and reply to everything in a dismal voice, and your melancholy lingers. There is no more valuable precept in moral education than this—as all who have experience know—if we wish to cure undesirable emotional tendency in ourselves we must assiduously, and in the first instance cold-bloodedly, go through the *outward movements* of those contrary dispositions which we prefer to cultivate. The reward of persistency will infallibly come in the fading out of anger or depression and the advent of real cheerfulness and kindliness in their stead. Smooth the brow, brighten the eye, contract the dorsal rather than the ventral aspect of the frame and speak in a major key, pass the genial compliment, and your heart must be frigid indeed if it does not gradually thaw."

Ribot says, enlarging James's illustrations: "In fear suppress the palpitation of the heart, the hurrying breath, the trembling limbs, the widening muscles, the peculiar state of the viscera; in anger, the heaving of the chest, the congestion of the face, the dilatation of the nostrils, the clenching of the teeth, the *staccato* voice, the impulsive tendencies; in sorrow, get rid of tears, sighs, sobs, sorrow, anguish—what will remain? a purely intellectual state, pale, colourless, cold. A disembodied emotion is a non-existent one." This theory may be questioned, but it succeeds in putting very vividly the relationship of body to emotion; and the possible effect of exercising the will on the bodily conditions that accompany or precede emotion. The power of mind over body is so great in some instances that if the mental shock is intense enough, and the body somewhat weakened, especially if the heart is diseased, it has power to kill, just as a deadly poison will kill an individual. Dr. D.

Hack Tuke[1] has brought together convincing proofs of this.

The sequence of events which occur when a mental emotion is the cause of mental unsoundness is the following: First, we have a depression, an excitement, or an arrestment of action in the bio-chemical action of the cells of the mental centres of the brain. Accompanying this we have a diminution or an excess in the capillary blood supply to those cells. The result is that the mind-working in those cells is altered in character. If the cells have not the innate resistive and recuperative power that they should possess, they remain depressed or elevated in action. The food appetite is lessened or paralyzed, the blood is impoverished, the sensory centres in the brain become affected, and we have conscious sensations of ill-being, or even positive mental pain. The general feeding of the tissues and organs of the body is impaired, their power of self-nourishment is diminished, or they take on such modes of action that they produce substances that act as poisons to the brain cells. All those conditions re-act on the mental centres in the brain for the worse. They were originally effects, but they soon become themselves causes for the further aggravation of the morbid condition of the mental cells, which thus go more and more away from health. They become incapable of being the vehicle of sound feelings or sound judging, so that persistent misery and such incapacity to reason are set up that the patient reasons delusionally. He believes that all this misery is a punishment for his imaginary sins or crimes, that the police are going to arrest him, and that he is going to be hanged. That well-known tendency in the brain, the propagation, diffusion, and extension of action normal and abnormal, the "law of avalanche," comes in, so that those parts of the brain which minister to the primary instincts, such as

[1] *Illustrations of the Influence of the Mind on the Body*, by D. Hack Tuke, M.D., LL.D.

the love of life, of offspring, and the social instincts are impaired and lost. When the love of life is lost there comes the furthest stage of all, that of a desire to end life, and we have suicidal feelings and suicidal attempts. The fact that this downward course has taken place, instead of a natural recovery in the early stages, means that the brain cells of this particular individual have acquired that morbid quality which we call over-reactiveness and instability of working in an undue degree.

Over-Sensitiveness.—Over-sensitiveness of natural disposition is the psychological basis on which most cases of unsoundness of mind with depression are founded. To have a sensitive brain is the source of most of our intensest pleasures and some of our acutest pain, but to be over-sensitive is a great danger, because it gives the capacity for feeling pain too intensely. It goes, in fact, with the melancholic temperament. In that the extent of the emotional reaction downwards is apt to exceed the strength of the stimulus.

In a normally constituted brain there is a certain relationship between the stimulus and reaction in kind and degree. This is regulated by strict laws, just as the responses of a delicate galvanometer are in precise relationship to the strength of the current. The over-sensitive brain is like a galvanometer whose mechanism is deranged, so that it responds in an undue degree to the currents applied to it, and the non-sensitive brain is like such an instrument which does not respond sufficiently to the current.

The over-sensitive brain is also subject to what we call mental explosions, and this morbid tendency is the cause of much unsoundness of mind. Such mental explosiveness means an excess of output with a sudden loss of the controlling faculty. The output of energy comes with a rush, and tends to spread through the brain so that all the mental faculties become deranged in action and consciousness itself may be suspended. Such cases are

analogous mentally to what took place in a case of epilepsy once under my care, where, if the lad were struck suddenly, instead of the normal reaction of jumping away from the source of injury, he passed into general convulsions of the body, which were quite uncontrollable by his will. I have seen a woman who, when suddenly contradicted or annoyed, would pass into a condition of such mental excitement that she screamed out, broke things, and assaulted people. This lasted for a short time, and then she would subside into a normal condition of self-control. Her brain cells "exploded" from a most insufficient stimulus, and gave out an undue amount of energy at once.

Temper.—Many cases of unsoundness of mind are attributed by their relations and friends to "temper." Temper is an exceedingly interesting branch of psychology that has not had sufficient attention devoted to it. The happiness and the comfort of half the families in the kingdom depend on the temper of its members. An uncontrollable temper is in many cases very like, and nearly allied to, an unsoundness of mind. "*Ira furor brevis est*," said the Roman. In a few cases the one passes into the other, and I believe leads to the other. I am in the habit of saying that "sanity is self-control, and insanity is want of it," but this rather confuses unsoundness of mind with temper. It is certain that bad temper may gradually pass into technical insanity, and that a considerable number of persons who are passing into insanity and have passed into it, exhibit as their most marked symptom morbidness and violence of temper. A bad temper becomes in some of those cases dangerous insane impulse. "It's just temper, doctor," is one of the most common remarks that I have heard made about many of my patients by their relations and friends. I think it is quite certain that in most cases much might be done in youth to establish a reasonable control over temper, where it is inclined to be un-

controlled, so preventing serious discomforts in life, both to its possessor and to others. In many cases I am satisfied that this education would have the effect of preventing unsoundness of mind also, arising out of uncontrolled temper. I have met many persons who have said, "I once had a very bad temper, but I have succeeded in subduing it." A strongly exercised will may thus control temper, regulate unruly conduct, and even prevent attacks of unsoundness of mind by antagonizing its beginnings. Religious motives, moral effort, and the cultivation of a stoic philosophy will often have the same effect.

Any of those mental causes may have been present for a long time, without producing actual mental unsoundness, until they lead to other and more purely physical causes of that condition. Following on them the sleep becomes shortened and unrefreshing, the appetite lost so that food is not taken and assimilated in sufficient quantity to sustain the delicate textures of the brain ; sufficient air and bodily exercise is not taken in such amount as to keep up the ordinary bodily health ; the blood loses its enriching and stimulating qualities, so that the brain cells do not get out of it either the oxygen or the nutritive materials that are absolutely necessary for carrying out their incomparably important functions. The building-up process—the anabolism—in each cell is not carried out by due amount of sound sleep. In consequence of those combined mental and bodily causes the power to think clearly, to will vigorously, and, above all, to feel in a normal way, are diminished or lost. The mental outlook is obscured and disturbed by mental glasses that did not transmit light to the mind in a normal way or in normal amount.

The chief mental causes of unsoundness are emotional rather than intellectual. Domestic affliction is the most potent. The higher in the social scale, the better the education, the greater is the risk of emotional causes

upsetting the brain working. We find mental causes nearly twice as frequent among the private patients in our mental hospitals as among the poorer classes. Losses in business, coming down in the world, breaks in friendship, overstudy, solitary or too exciting lives, even love affairs, come far below shocks to the domestic affections in bringing on mental disorder.

Religion.—Religion is often put down, and is popularly considered to be, a frequent cause of unsoundness of mind, and there is a common belief that "religious insanity" is always of a very bad and incurable type. There is no doubt that morbid ideas and delusions about religious matters often occur in unsoundness of mind; but to talk of "religious insanity" as if it were a definite and definable form is in my judgment a mistake. It is true that religion, touching as it does, in the most intense way, the emotional nature and the spiritual instincts of mankind, sometimes appears to cause, and is often mixed up with, insanity. But in nearly all such cases the brain of the individual was originally unstable, specially emotional, over-sensitive, hyper-conscientious, and often somewhat weak in the intellectual and inhibitory faculties and, if looked for, other causes will usually be found. Its manifestations, too, are apt to be dramatic, hence it attracts much attention when it occurs. In some cases, no doubt, it is incurable, but scarcely more so than the average of the unsoundnesses of mind. The effect of religious feeling on the mind depends largely on the way in which it is presented. That is often stormy and irrational, appealing to fear and the emotions only, and its services are sometimes attended with excitement and loss of control. In that case—given the kind of brain I have described—it may undoubtedly tend towards mental upset. Where it is presented in a calmer way, and is chiefly concerned, as religion ought always to be, with morality and the conduct of life, it is emphatically not a danger to the human mind. On the

contrary, it preserves many people who would otherwise have become insane from falling into that condition. Religion of the right kind is therefore only a rare cause of mental unsoundness.

There are persons, however, in whom the religious instinct exists in so strong a degree from the beginning that their minds form a fitting soil for its extremist developments and dangers. They tend to cultivate exclusively their emotions, they wholly rely on faith, they live in the subjective, and they strive to attain that mystic condition which is to them the end and aim of the religious life. One of the best examples of the books of this school is *The Graces of Interior Prayer; a Treatise on Mystical Theology*, by Father Poulain, just published, in which this aspect of psychology is treated with a system and a prosaic fullness of detail—and withal a profound and simple faith—which is most instructive from the scientific point of view. The quotations from the experiences of the female Saints are especially noteworthy. Where we have a strong innate religious instinct carefully cultivated in youth in a person of bad nervous heredity, the physician must earnestly hold up a warning finger as to the dangers of the purely emotional or mystic as opposed to the practical and rational in the religious life, for this is one of the ways that lead to unsoundness of mind.

There are conditions short of what may be called technical unsoundness which are common enough in certain religious revivals and among the ignorant and superstitious of all races, but especially among the Celtic and Southern peoples. The negro race in America is apt to exhibit those conditions in the most exaggerated and grotesque ways. If we take the Irish and Welsh revival movements as examples, many of the phenomena of mental unsoundness were present. Persons lost all self-control, shouted and sang, and behaved irrationally, had hallucinations of the senses, and also simulated the

motor convulsions of epilepsy, this condition spreading by a sort of emotional infection among large numbers of people. Such conditions, for the most part, pass away in a short time. Many of the phenomena of such conditions are examples of the well-known law of suggestion in psychology. The dancing manias of the Middle Ages were pure examples of this law. Some of them had as exciting causes the false belief that the subjects of them had been bitten by the tarantula, or wolf-spider, of the South of Europe. The subjects of this nervous affection leapt and danced, gesticulated and cried, and the whole of the symptoms constituted them examples of an epidemic nervous disease. They were very subject to the effect of music and such-like "remedies." All such conditions may be put down as being forms of pseudo-unsoundness of mind. The Roman Catholic form of religion undoubtedly lessens suicide among those who profess it as compared with the other Christian sects. The religious emotionalism in the young is apt to be connected with sexual excitement, not necessarily in gross forms, but attended by subtle and morally dangerous imaginations and feelings, in which æstheticism, sex ideals, and religion are all mixed up together. Religion and sex have this in common, that the emotional and the ideal are largely dominant in each of them.

CHAPTER X

BRAIN POISONS AS GENERAL CAUSES

WE now come to causes which produce unsoundness of mind through their direct action on the brain. Of recent years great attention has been given to the subject of the effects of brain poisons, "toxins," as a cause of the various forms of unsoundness of mind and of other nervous affections. The more this has been studied the greater has become the realization of its vast importance, though, like all new ideas in science, it is now sometimes pushed to extremes. Such brain poisons are of two kinds, those that come from without the body, "exogenous," such as alcohol, which produce intoxications, and those that arise within the body—infections from the bowels, thyroid gland, or the uterus after childbirth. Those poisons are again subdivided into the chemical and the microbic. In the course of the action of the chemical poisons there may arise toxins which change the vital action in the brain cells, and so become the immediate cause of the unsoundness of mind which results. To take an example, alcohol is said by the advocates of this view to produce alcoholic insanity, not immediately and by its direct action on the brain cells, but by first causing in the blood and within those cells such chemico-vital changes that poisons are created, and this secondary poisoning is assigned as the immediate cause of the alcoholic insanities. This may be regarded as a theoretical view of

the stages through which the result occurs. The main fact is that mental unsoundness frequently results from the taking from without or the production within the body of certain substances which injure the brain.

The microbic toxins may come from without or from within the body. If from without, it is certain that it is not the microbes themselves that produce the result, but the poisons which those microbes create in their growth or decay. It must be kept in mind that microbes of the same species may produce bad mental effects or may be virtually harmless, according to their virulence at the time, and according to the existing resistive and destructive power of the "anti-bodies" and "phagocytes" in the blood and tissues. The diphtheroid bacillus, which causes diphtheria, may either produce a severe and deadly infection, or it may result in a very mild attack of the disease, or it may be found in a healthy person's throat, where it appears to do no harm whatever. Against the effects of all microbes there may be set up, and there is constantly an attempt to set up, what is now called an "immunity" by the formation of what are called "phagocytes" and "anti-bodies" in the blood and tissues. There can be no doubt in regard to the brain, that where this immunizing process is successful at an early period of microbic invasion, the mental action will not be much affected, while if it is not successful mental upset may occur. For instance, it is now demonstrated by the bacteriologists that the mucous membrane lining the inside of the bowels has on its surface a vast number and variety of bacteria and micro-organisms, which are called the "flora of the intestines," the greater portion of which are quite harmless, and some of which are now thought to be even advantageous or necessary to the processes of the digestion of food. Some of the harmful varieties are so like the harmless in appearance that it is most difficult to distinguish between them. The "Bacillus coli" is so like the deadly bacillus of typhoid—"B.

typhosus"—that it is only by careful stainings and other tests that they can be distinguished, and it has lately been ascertained that the typhoid bacillus may be present in the bowels, and even in the glands of the body, for long periods without apparently doing any harm to the health of the person who carries them. The very latest discovery in regard to this bacillus is that when so latent in the bodies of the persons which contain it—the "carrier," as that person is termed—it may infect others, so producing attacks of typhoid fever in them when it has done its original carrier no harm. This is found to account for epidemics of typhoid when there was no other ascertainable cause of the disease. All those remarkable facts about the action of microbes have a relationship to the causation of toxic unsoundnesses of mind. There are many difficulties and a considerable amount of uncertainty as yet as to the precise way in which those toxins act on the brain and produce the result of mental disturbances, but no year passes without additional light being thrown on the subject. The infections from within the body may come from the intestines, the stomach, the thyroid and parathyroid glands, the suprarenal capsules, the kidneys, the liver, and the sexual glands. The waste materials due to excessive muscular action has also been proved to influence the mental processes unfavourably. The mental effects from each one of those toxins is apt to be in some lesser or greater degree different from any other. It is no wonder that such modern views of the causation of mental unsoundness, along with the light they have thrown on it, have also introduced additional difficulties and complications into the study of psychiatry!

Metastasis.—There is a pathological fact about toxins in the way they cause unsoundness of mind sometimes seen—namely, the transference of a disease or poison from some other part of the body to the brain. This is called "Metastasis" in medicine. The simplest and

most evident example of this is when the poison of acute rheumatism suddenly leaves the joints and attacks the higher brain cells, with the result that the patient becomes acutely maniacal and commonly choreic as well. This is called "Rheumatic Insanity." Its course is frequently remissional; that is, the poison will return to the joints and leave the patient well mentally, this process of metastasis or transference occurring several times. The same thing is liable to happen in gout, erysipelas, &c. Such cases of metastasis are toxic in character, and should be looked on and treated as cases of brain toxæmia.

There are other examples of a different kind, however, such as brain unsoundness suddenly following on and taking the place of nervous maladies, as when it takes the place of asthma and neuralgia. I have known many cases in which this happened, the patient suddenly getting rid of those diseases and a mental disturbance taking their place, this occurring again and again. I have seen more than one patient where the healing of an old ulcer was followed by an attack of unsoundness of mind. I have often seen also the disappearance of certain diseases of the skin followed at once by unsoundness of mind.

CHAPTER XI

ALCOHOL AND PARTICULAR BRAIN POISONS AS CAUSES

ALCOHOL is by far the most common and the most characteristic of the poisons introduced from without ("exogenous") that have a markedly hurtful effect on the brain cells and their mental working in causing unsoundness of mind. While statistics are notoriously unreliable in medicine, or, at all events, they are of the class of evidence that needs correction and qualification, yet it seems to be a fact proved by the experience of a large class of competent observers that alcohol is responsible in some degree or other, and in some way, for about 20 per cent. of the mental unsoundness that is so marked as to require treatment in mental hospitals. Physicians to mental hospitals, the medical Press generally, the Commissioners in Lunacy, and several impartial investigators who have made this a special subject of inquiry, all agree on this point. There may be, and there are, differences of opinion as to the exact part played by alcohol in such mental upsets of the brain in different persons. Some take the view that in a considerable number of the cases the alcoholic excess is not so much the cause of the mental unsoundness as one of its first consequences. Notoriously in a large number of cases which end in marked and general unsoundness of mind the first symptom to appear is a loss of mental inhibition, an aggravation of cravings and desires and an

accentuation of the bodily as opposed to the mental and moral aspects of the life of man. Alcohol in some of its forms, being the readiest and the best known, is naturally the stimulant most used. This, no doubt, accounts for a certain number of cases in which alcoholic excess precedes unsoundness and is really one of its symptoms, but even in those it is an undoubted pathological fact that such use of alcohol always accentuates any existing tendency to unsoundness, and is liable to bring on its more marked as opposed to its less marked forms.

It has also been urged, and with some amount of truth, that in the so-called neuropathic—that is, the highly nervous—constitution all brain stimuli, mental, moral, and physical, are commonly craved for, and when indulged in to excess, are apt to lead to unsoundness of mind; in fact, given such a constitution of brain, it is somewhat of an accident what particular form of excess or dissipation leads to the attack of mental disease. If it is not one, it will be another. If not whisky it may be a religious carnival. Such are, as it were, the ordinary incidents in the life-history of such a brain so constituted. An upset was almost bound to occur at some time in life.

It is also pointed out by those who are sceptical as to alcohol being so frequent a cause of unsoundness of mind that vast numbers of persons take alcohol to excess with no such result as the occurrence of mental unsoundness. This only is a proof of the well-known physiological fact of the enormous power of resistiveness in normal brains. It perhaps shows also that in order to have the effect of producing such unsoundness of mind we require the two factors, the predisposing and the exciting—a lessened power of resistiveness, and alcohol. No one, however, denies that if alcohol is taken in sufficient excess there is no brain whatever, even the strongest, that can resist some bad mental effects, although they may not take the form of technical insanity.

To the student and to the careful observer of brain psychology and physiology it had long been evident that there are what might be called lesser mental and moral effects resulting from an excessive consumption of alcohol, which are evident enough when an analysis of the whole mental condition of the individual subjected to it is made, but not apparent on the surface to the casual observer. Lately this point may be said to have been settled from a scientific point of view by the careful experimental investigations made on the Continent, in America, and in this country. The modern study of experimental psychology has naturally included the results of alcohol on the combined mental and motor functions of the brain and mind, so far as that could be tested. The most exhaustive and accurate work of this kind has been done by Kraepelin in Germany and McDougall in this country. The first obvious result of those experiments was this—that alcohol was proved to have a special affinity for the higher brain cells, and at once when it reached them through the blood that it affected both their mental and bodily working. The effects of the small doses of alcohol given to the persons experimented upon, who were chiefly students, young men with sound brains, was that there was "a sensible lowering of the capacity for work," "increased excitability," power of attention was diminished, the will-power, the reflexes, and the co-ordination of mind with accurate voluntary muscular co-ordinations and adjustments were affected, while there was a tendency to automatic as distinguished from voluntary action of the brain. Those experimenters devised accurately recording instruments with electrical adjustments, so that the effects noticed were absolutely scientific and reliable. McDougall has lately perfected his method of experimenting, so that the persons experimented on did not know whether they were taking alcohol or some innocuous substance, thus eliminating any errors that might have arisen through

expectation and suggestion. Not only were those effects noticed at the time the alcohol was circulating in the blood, but after-effects were observed, which remained for some time, and which made the brain cells more susceptible to alcohol after its use had been discontinued for several weeks and then resorted to again, than it had been originally. The persons experimented on were also tried in various conditions, such as when they were in a natural condition, and when they were in conditions of exhaustion and fatigue. The faults of attention and muscular co-ordination were so great under the influence of one ounce of whisky that 11 per cent. of errors occurred, and under the influence of three ounces of whisky that 54 per cent. of such errors were made, as compared with normal conditions of brain. Curiously enough, the experience of humanity in regard to the restorative effects of tea were confirmed by McDougall by his finding that it either had no effect or a decidedly beneficial effect on such workings of the brain, and there was no reaction after its use.

It may be said that the powers thus tested—mental and muscular—may yield to the effects of alcohol, but that the emotional and social faculties are equally brain qualities, and that we have no power of testing the effects of alcohol on those. Conceivably the imagination, the social instincts, the general feeling of well-being, might be increased, while the purely reasoning faculties and the power of attention might be accentuated. It might also be said that alcohol may produce a soothing, restful, and somewhat deadening effect on the brain, which in certain conditions of fatigue would be helpful to restoration by simply keeping the brain quiet, putting it to sleep, or diminishing its general activity when in states of tiredness or hyperactivity. It is only fair to bring these possibilities forward. Looking to the almost universal use of alcohol among the most energetic and progressive nations of the modern world,

taking into account the praises in prose and verse that have been lavished on it, and considering the physiological craving that mankind has exhibited for some form of stimulant or narcotic, we cannot in scientific honesty deny the presumption of some good effect or other. Nature's law is that a craving or a desire means there is a need. The questions are—How is that need to be supplied? and What risks are there when certain means are employed for this purpose? It may, however, be held to be proved to the hilt that the brain and mental risks of alcohol are enormous.

It is a mistake of a somewhat common kind to imagine that alcohol is responsible for the greater part of the mental unsoundness of the civilized world. Such mistaken statements are very often made, and do harm by attaching painful and unwarranted associations to a disease which ought to excite nothing but sympathy. That alcohol, though so common a cause of mental unsoundness in our large city populations, is not a necessary cause is proved by the fact that the alcoholic percentage goes down markedly in the country districts, reaching to only 5 per cent. in some counties, and yet insanity is prevalent in them. There is also a remarkable fact, proving the same thing, to be found by a study of mental unsoundness among the Society of Friends. Everyone knows that this is notoriously the most restrained, self-controlled, and sober of all our larger Protestant religious bodies. Yet a careful examination of the history of its members shows that there is a larger proportion of mental unsoundness among them than among the general population. I have this fact on the authority of my late friend Dr. Daniel Hack Tuke, one of the descendants of William Tuke, the great benefactor of the mentally unsound, who was also a most distinguished writer on psychiatry, and was himself a member of the Society of Friends. He stated that the records of the Society were so well kept that

these facts could not be doubted. It has also been proved by recent statistics drawn up by Dr. Cheinisse and other careful observers that although alcoholism is markedly less frequent among the Jews than our European Christian populations, yet that unsoundness of mind, hysteria, and other allied nervous affections are considerably more common among them than the average of the United States and Europe. In regard to the Society of Friends, I have no doubt that the reason for the greater prevalence of mental unsoundness among them is the constant inter-marriage among such a limited community during the two hundred and fifty years that the sect has existed. I shall have occasion to refer in Chapter XXX. to a similar illustration of the effects of too close interbreeding in one of the parishes of the Orkney Islands. The two facts, taken together—*i.e.*, the large percentage of mental unsoundness due to alcohol in our city populations, and the greater percentage among the Jews and Quakers who are non-alcoholic than among our general population—form indubitable proof that the condition may be due to very various causes with which alcohol has nothing to do. Where one cause does not exist, another of a different kind comes in and takes its place.

Whether the use of alcohol, either in excess or as an article of diet, produces a tendency to unsoundness of mind and a general race degeneration in the children of those who so use is at present a burning question on which great scientists are in acute disagreement. The general opinion of the medical profession, of social workers founded on their experiences, and the results of elaborate statistical investigations into the question in this country, America, and Scandinavia had all gone strongly in favour of the conclusion that the children of drunkards were apt to show many signs of nervous and mental degeneration. Experimental physiologists had found that alcohol, even in small amount, when

brought in contact with germinating ova, produced marked degeneration in the offspring.

Those conclusions seemed to be startlingly contradicted by a memoir and its supplement lately published by Professor Karl Pearson and Miss E. Elderton, founded on Manchester and Edinburgh statistics, and arrived at by strictly biometric methods. Since the publication of this memoir its conclusions have been in turn vigorously controverted by Professor Marshall, Dr. Saleeby, Mr. Keynes, Dr. W. C. Sullivan, and Mr. Montague Crackenthorpe. Professor Pearson's conclusions seemed to show that a drunken ancestry did not affect progeny unfavourably, but that the children were rather more healthy and more intelligent than the average children of the industrial classes, though the death-rate among them was somewhat higher. The possible fallacies of Professor Pearson's conclusions result chiefly from the fact that he is not a biologist, and his methods do not take into account all the biological data. His data, for instance, did not take into account the different forms of alcoholism in the parents, and his facts were ascertained not by skilled observers but by "social workers" who had no scientific or biological training. The most obvious initial fact which requires to be ascertained in any such investigation in every case is whether the alcoholism or the offspring came first. This was not done by Professor Pearson. Dr. Mott, a careful and reliable medical scientist, has made the latest pronouncement on the subject. He quotes the case of a woman who had had two husbands, and by the first—a temperate man—had a family of healthy children and grandchildren, and by the second—a chronic drunkard, one of a family of drunkards of several generations—had three children, two of whom had serious nervous diseases. He then says: "It has long been the opinion that chronic drunkenness of the parents leads to mental degeneracy in the offspring in the form of feeble-mindedness and

epilepsy. With this I should agree." [1] Looking at this matter from the point of view of the authorities who have gone into it and the facts at present available, it seems to me that the weight of evidence is greatly in favour of the transmission of evil results from drunken parents to their children, so that degenerations, bodily and mental, lowered intelligence, impaired moral qualities, liability to diseases of various kinds, and unsoundness of mind are liable to result in children from the effects of alcoholic poisoning of the parents, apart altogether from the necessarily degrading and unfavourable influences of the alcoholic home upon children.

The other most common poisons from without the body that are found to cause unsoundness of mind are opium and its powerful constituent, morphia, Indian hemp, cocaine, chloral, lead, and henbane. The mental effects of each one of those substances differs from every other in some respects, but they all have this in common, that they are brain poisons, and that most of them create a craving for their continued use, with a diminished power of control over such craving.

[1] *British Medical Journal*, 8 October, 1910, "Hereditary Aspects of Nervous and Mental Diseases."

CHAPTER XII

CAUSATION (*continued*)

INFLUENZA — FEVERS — FATIGUE, EXHAUSTION, INSOMNIA — GROSS BRAIN DISEASES — THE LESS FREQUENT CAUSES—LIST OF CAUSES

INFLUENZA

ONE of the most interesting and typical causes is the influenza microbe and its poison, which is a type of the invasions to which the human body is liable of microbes from outside the body and the poisons which those microbes produce. Influenza first appeared in recent times in the years 1889–1890. It swept like a scourge over Europe and America. It probably affected the majority of the persons living in those two years. Injurious results were seen in every organ of the human body in different cases, but it had a general effect in every case, and that was to depress the action of the brain and nervous system. Whatever other organ or function was affected, that was an invariable accompaniment. It was a nerve poison. If I were to attempt to go into the details of the nervous effects of influenza it would take a treatise to do so. Looking to its mental effects they were often very various. In certain parts of Russia they took the form of violent delirium accompanying the feverish period. In other cases it produced general convulsions and inflammation of the brain. But the term "nervous depression" expresses

its universal effect, both at the time of the fever and in the after-affects that resulted. Those after-effects were sometimes the most serious part of the disease. I believe that I was the first to direct attention to the directly mental affects of influenza, when I said in 1890 that "the epidemic of influenza of 1889–1890 left the European world's nerves and spirits in a far worse state than it found them." Dr. Elkins, then on my staff, wrote an admirable account of its mental relations in one hundred and forty cases.[1] It seemed to have the effect of burning up, as it were, and exhausting nervous energy. In the year 1890 I found, as the then physician to the largest Mental Hospital in Scotland, that for the first time in my experience of twenty years the patients suffering from mental depression (melancholia), sent to that hospital, were more numerous than those of mental excitement with exaltation (mania), or of weakness of mind, or of delusions, or of paralysis, and from that time to this cases of depression have remained more numerous in all our mental hospitals than ever they had been before, although they reached their acme in the two years of the great epidemic. I shall have occasion further on to speak of the special forms which unsoundness of mind takes, but here I may say that the depression of mind caused by influenza did not, by any means, assume such an acute form that the patients required to be sent in any large numbers to mental hospitals. On the contrary, the cases needing this were infinitesimal as compared with those who suffered more or less of the milder kinds of mental depression.

Fatigue and Exhaustion.—One cause of mental unsoundness is that of brain exhaustion which may have its origin in many ways. The human brain is so constituted that when sound and normal in working it will bear to be pressed hard in almost every direction,

[1] "Report of an Epidemic of Influenza occurring at the Royal Asylum, Morningside," by D. A. Elkins *Brit. Med. Journal*, 1890.

without breaking down into mental unsoundness. Its innate quality of resistiveness comes in, and also that law by which either a nerve cell or any group of cells or centres, when they reach a certain point of action and exhaustion, cease to be able to put forth any energy at all, and no power or stimulus will make them work any more. They have done their utmost, and then they call imperatively for a period of rest and nourishment. They have exhausted their latent energy. This may be called a normal "paralysis of action" following exertion. The output of energy ceases when the cell has put forth the full force of which it is capable. After having rested, and being fed with proper nourishment—and nerve rest takes place chiefly through sleep—it regains its former power of working, and is none the worse of the temporary fatigue. This condition may be called mere brain fatigue as opposed to the morbid process of brain exhaustion of which I am now speaking. If sleep, "Nature's sweet restorer," does not come on, or for any reason is long interrupted, that brain fatigue becomes brain exhaustion, and if there is a mental or neurotic heredity there is a risk of mental unsoundness or of neurasthenia. The precise degrees and kinds of fatigue and exhaustion and some of their effects can now be accurately measured and demonstrated, as has been done by Professor Mosso of Turin,[1] McDougall of Oxford,[2] and others. But there is no process yet discovered by which we can accurately distinguish beforehand the brain which is specially liable to pass into a state of unsoundness of mental working due to exhaustion. Many men and women are so constituted in brain that they can tire themselves out every day, and yet, through their power of rest, feeding, and sleep, are none the worse for it. There are many others, again, especially in this age of

[1] Mosso on Fatigue, trans. by Margaret Drummond.

[2] "Conditions of Fatigue in the Nervous System," by William McDougall, *Brain*, part cxxvii., vol. xxxii.

hurry, excitement, and city life, of over-refinement and thin-skinnedness and of over breeding, that do not possess, or have lost, this most valuable quality of speedy nerve recuperation. When they work too hard, or, as is most frequently the case, when they worry too much, when they suffer anxiety or excitement, they do not pass into the normal reaction stage of physiological laziness, true restfulness, and sound sleep. Mosso's investigations seem to show that in those cases a subtle poison has been generated from within, which irritates the brain cells and prevents them from sleeping.

Nowadays there have been devised many new methods of treating such conditions which were either unthought of in former times or were not needed. Rest-cures, Weir-Mitchell treatment, open-air treatment, mountain-climbing, sun-baths, massage, and many other methods of overcoming those conditions of exhaustion before they reach the stage of unsoundness of mind, have been used and in many cases are effectual for their purpose. McDougall's theory of the relation of resistance to energy, and also his views as to there being in the brain, but especially in the cerebellum, vast sources of potential nervous energy bottled up, as it were, for the purpose of reinforcing and strengthening the energy of the cells in action when the proper stimuli are applied, seem to throw light on certain cases of mental unsoundness and neurasthenia from fatigue and exhaustion. If such latent sources of energy exist, and if they can be utilized and made to operate in reinforcing the cells, we might be able thus to treat the prolonged and pathological fatigue and exhaustion which characterize certain melancholics and overcome this serious symptom.

Insomnia.—Insomnia and its effects well deserve the careful study of the student of the causation of mental unsoundness. This most trying disease—for it is a disease in many cases—has always afflicted humanity to some extent, judging from the references to it in literature,

but either it is more common now than it used to be, or we make more of our symptoms and talk more about them than our ancestors used to. If not the sole cause of mental unsoundness in many cases, it precedes that condition in three cases out of four and aggravates it in every case. The brain cells have not the chance of undergoing that process of anabolism, or repair, that I have spoken of. The patient cannot sleep, and therefore he cannot work properly. The general nourishment of his body fails, as well as, and often because of, the failure of nourishment in his brain cells. He becomes thin, his muscular tone suffers, his appetite gets less, his digestion is impaired, he becomes irritable, he cannot think continuously, emotionally he gets unhappy, and so the road lies open for melancholia and possibly suicide.

During sleep the amount of blood circulating in the brain is lessened, as compared with the waking condition, and therefore it has been held that insomnia consists in a morbid inability of the brain to become anæmic every night, but that merely expresses a fact, and is no real explanation of why the brain should not become bloodless when night comes on. The most recent theory is that sleep itself is caused by a subtle something, analogous to a poison, formed in the brain itself, or in the other portions of the body, which, when it accumulates to a certain amount, produces naturally this blessed brain rest. Certainly sanity and sleep go together, and the exhaustion produced by prolonged want of sleep tends either to insanity or to some other nervous unsoundness.

Injuries to Brain and Gross Brain and Nervous Diseases.—Unsoundness of mind is liable to occur, of course, when the brain is physically injured by blows on the head, falls, electricity, sunstroke, or disease such as apoplexy and tumours. Such causes are not uniform in their symptoms. The mental effects depend on the position of the injury, or on its severity, and whether the upper or lower parts of the brain are affected. Where

the mental vehicle is grossly injured unsoundness of mind is a much more frequent consequence than where the lower parts of the brain are hurt.

It may be said that all nervous diseases, whether functional or organic, whether they affect the nerves, the spinal cord, the ganglia in the abdomen, or chest, may become causes of unsoundness of mind. Their effects in those cases ultimately reach the centre of all the nervous apparatus, the mental portions of the brain. Such cases are examples of that solidarity which exists in the whole nervous system, whereby every part of it is dependent more or less for its normal action on the condition of every other part. This solidarity reaches its maximum in the brain, of which it may be said truly that no portion and none of its varied functions can be disturbed, or injured, or suffer from disease without entailing risk of a universal disturbance of mind or body.

Less Frequent Causes.—There are many other and less frequent causes of mental unsoundness than those I have discussed. There is a form of mental unsoundness associated with tuberculosis, which I described in 1863 and called "Phthisical." [1] It occurs in about 2 per cent. of the admissions to mental hospitals. There is usually a heredity to both diseases in the cases. Such patients are unsocial, suspicious, depressed, and irritable. The mental symptoms sometimes occur before the tuberculous infection can be diagnosed. The toxin from the tubercle bacillus may be the cause of the mental disturbance, which is usually recovered from when the phthisis is cured. There is a distinct hereditary connection between a predisposition to phthisis and that to mental unsoundness.

Most persons labouring under diabetes are more or less mentally handicapped, some of them falling into

[1] "The Connection between Tuberculosis and Insanity," by the Author, *Journal of Mental Science*, April, 1863.

decided unsoundness of mind. Certain persons with heart disease become mentally unsound thereby. Bright's disease is also at times accompanied by unsoundness of mind. All persons who suffer from myxædema or thyroid insufficiency are more or less mentally affected, this at times becoming marked unsoundness. Many persons who suffer from exophthalmic goitre are changed in emotional condition. Lead-poisoning, malaria, and pellagra (a disease that frequently accompanies the consumption of unsound rye and maize, and a microbe which infests those cereals, among the peasantry in Italy), are also liable to mental disease. Those may be mostly classified as among the "toxic insanities," having their general characters of hallucination, confusion, suspicion, and sometimes depression of mind. There are other of the less frequent causes of unsoundness of mind, which have no toxic elements—surgical operations, deaf-dumbness, and deprivation of the senses. There is a curious form of what may be called temporary or pseudo-unsoundness of mind connected with somnambulism where we have perversions of the senses and a false consciousness. I knew a man who when in the somnambulistic condition, mistaking his child, who was sleeping in the cradle, for a wild beast, took up a poker and killed her instantaneously. He was unsound in mind only when asleep.

Chief Assigned Causes in 11,346 *Cases. Statistics.*—A glance at the following list of causes of mental disease in 11,346 cases which were under my care in the thirty years 1874–1903, enables one to realize how supreme a position the human brain holds in nature. It is thus seen to be capable of being upset by almost every evil influence in the world from without and from within the body. If its own constitution has had any weak points it may become deranged in mental action from causes that are perfectly normal events, such as pregnancy, child-birth, puberty, adolescence, and old age. In other

cases it may be upset by such causes as are common to most human beings in the the world, such as adverse circumstances, mental anxieties, overwork, nursing sick persons, religious and emotional excitement, love affairs, privations, surgical operations, and ordinary bodily diseases or disorders. Then we have the direct and more manifest causes affecting the mental working of the brain, such as intemperance in the use of alcoholic drinks. There are some causes where the unsoundness of mind may be said to be adjuncts, not necessary concomitants, of other nervous diseases, such as epilepsy, chorea, neurasthenia, diabetes, and inflammations, softenings, and tumours of the brain. A moment's consideration, however, shows that the very frequency and wide extent of the causes prove that the ordinary average brain of a human being must be greatly resistive, otherwise there would be far more cases of unsoundness of mind than there are.

The list of causes of unsoundness of mind, predisposing, exciting, and immediate, which I find put down in those 11,346 patients sent to the Royal Edinburgh Mental Hospital in the course of thirty-five years, have been the following: viz., hereditary predisposition, congenital defects, previous mental attacks, brain development (puberty and adolescence), brain decadence (climacteric and old age), pregnancy, childbirth, nursing, abortion, epilepsy, hysteria, St. Vitus's dance, disordered menstruation, gross brain diseases such as tumours, softenings, neuritis, paralysis, cerebral embolism, apoplexy, progressive muscular atrophy, acromegaly, tuberculosis, anæmia, injuries to the head, sunstroke, self-abuse, sexual excess, surgical operations, diabetes, Bright's disease, asthma, heart disease, bronchitis, prostratic disease, deprivation of the senses, insomnia, excessive bodily pain from various diseases, uterine and ovarian disease, cancer, neurasthenia, locomotor ataxia, bodily accidents, neuralgia, starvation, diseases and injuries of the spine and nervous system, lupus, hydro-

cephalus, meningitis, suppurations, weakness of general health, nervous debility, commencing menstruation, erysipelas, abuse of alcohol and narcotic drugs such as chloral, morphia, paraldhyde and cocaine; influenza, typhoid fever, scarlet fever, rheumatism, gout, myxædema, exophthalmic goitre, (Graves' disease), transference of morbid action from other organs to the brain (metastasis), lead-poisoning, bi-sulphide of carbon poison, excessive tobacco-smoking, syphilitic poison, auto-toxins, toxæmia, malaria, chloroform inhalation, excessive number of children, eye diseases, mental anxiety and worry, overwork, overstudy, religious excitement, love affairs, marriage, frights, remorse, sudden joy, quarrels, changes of residence, domestic troubles and sorrows, business anxieties and pecuniary difficulties, sedentary habits, narrow escapes from accidents, disappointments, uncontrolled temper, solitariness of life, mental shocks, sudden and complete change of environment and circumstances, seduction, political excitement, over-excitement, dissipation, bad temper, fear of approaching confinement, fear of approaching marriage, forced marriage, desertions by husbands, poverty, dismissal from situations, Queen's Jubilee. No other disease has anything like this list of 107 causes. A black and terrible roll it is. Poor humanity has much to contend with to keep sound in mind.

Previous Attacks.—There is one event which is rightly put down as a predisposing cause of unsoundness of mind in many individual cases, and that is a previous attack of the same disease. It is an unfortunate characteristic of the working of all nervous tissues and organs, especially of the brain, that once its cells have been upset in their working in any way they are more liable, even after what seems a complete recovery, to be affected by the same disturbance again. What we call a diseased habit has been induced, which is analogous to an ordinary good habit of brain being formed. When the nerve cells

have done a certain thing, be it good or bad, be it normal or abnormal, they tend afterwards to do it again, and from slighter causes than those which originally affected their action. Mankind is handicapped in this way in regard to bad habits of the brain, but those must fairly be balanced against the beneficial effects of good brain habits. There are certain forms of unsoundness of mind, particularly those in the early stages of life, which are particularly apt to recur even after apparent recovery.

Looking at the entire causation of unsoundness of mind, the statistics show that a bad heredity, congenital defects, and previous attacks are the great predisposing causes, and that alcohol, the crises of life, epilepsy, the various forms of brain poisons and the gross brain and nervous diseases constitute the mass of exciting causes. Together they account for over 70 per cent. of the defects and diseases of the mind that came under my observation. In the 8,936 patients for whose illness causes were assigned, a predisposing and an exciting cause existed in the same patient in many instances. There were, however, 2,410 of the 11,346, or over one-fifth of the whole, where no cause was assigned, either from want of any history or that it was unassignable. Those were, many of them, what we call "idiopathic" cases, a name used to conceal our present want of scientific definite knowledge.

CHAPTER XIII

THE CLASSIFICATIONS OF UNSOUNDNESS OF MIND

SOME of the great difficulties in the classifications of unsoundness of mind consist of—1. The elusive, immeasurable, and subtle qualities of mind itself. 2. The enormous differences in mind among persons and races, who are in a normal condition. 3. The absence of a definite standard as to what constitutes unsoundness of mind. Innumerable attempts have been made to set up such a standard and to define the condition, but all alike have failed. 4. The fact that there is of necessity a somewhat wide margin or borderland, as to which there are necessary differences of opinion whether sanity or insanity exists. Scientific students of the subject hold different opinions from the general public. There may be said to be three insanities—the popular, the legal, and the medical, differing markedly on account of different standards of sanity. 5. There exist conditions which are consistent with technical soundness of mind and yet differ in many ways from normal humanity—the eccentric ; the crank ; the man or woman who acts solely from feeling and impulse ; the man whose religious beliefs are preposterously away from the ordinary religions of mankind ; the ecstatic ; the grossly superstitious ; the man who would now adhere to beliefs in the miracles and myths as believed in by the Greeks and Romans and the Eastern peoples; the man with hallucinations of the

senses which he knows to be hallucinations. Those all have a tincture of unsoundness of mind, but neither scientifically nor practically can be reckoned as such. 6. Then there are shades of mental difference that exist between one period and another in the developing brain. A grown man who exhibited the mental action of a child between two and ten would undoubtedly be reckoned of unsound mind. 7. The decadences in the mind and brain undergoing dissolution from old age. A man who in middle age exhibited the mental deficiencies of many men of eighty would undoubtedly be considered defective in mind. 8. The fact that in the same person the form of unsoundness may completely change in character from the time of its onset to its termination. 9. The impossibility of always accurately discriminating what symptoms are due to recent disease or disorder from those that may be due to an original congenital defect or to temperament. 10. The exact relationship of mind to body, and their mutual effects on each other, are obscure in their nature, though certain as a scientific fact. 11. The actual investigation and analysis of the mental condition, sound or unsound, is a most difficult process and is often impossible on account of the patient's reticence, his suspicion, his want of candour, or his incapacity to express in words the correct answers to your questions. A condition of confusion and stupidity is also often a cause of difficulty. 12. His mental state may, through the absence of any other means of examination, have to be inferred in a man from conduct, the expression of his face and eye, his movements, attitudes, and gestures, the mental symptoms being negative throughout. 13. The man as you see him has to be compared in body and mind with his normal condition, this being often difficult or impossible. 14. There are certain transient mental states due to temporary causes, such as drug or alcoholic poisonings, delirium, shock, grief, joy, &c., which for the

time being cannot be distinguished in certain cases from technical unsoundness of mind. I have often seen two men exhibiting precisely the same symptoms, so far as could be ascertained, and yet the one was unsound in mind and the other was sound. 15. In a man whose brain is working normally every craving or desire indicates a need of some sort for the body or mind. The craving is the revelation to consciousness of the need. In unsoundness of mind the law may be completely changed. There may be cravings and desires that express no need at all; their gratification might be hurtful or fatal to life. Such a man may crave poison instead of food, he may desire cold when heat is necessary for his life, he may crave to die when continued life would mean success, honour, gain, and the realization of all his life's ambitions and hopes. 16. About all these the advances in science have thrown more light on the subject, and thus classification has had to follow that new light.

But in spite of all these difficulties of classification, a vast body of definite facts in regard to mental unsoundness has been accumulated, and generalizations and conclusions from those facts have been come to. Lately there has arisen a movement, most important for the future of psychiatry, to connect it with and merge it into general medicine and general pathology. This is merely following the lines of recent scientific thought, which tends to unify the study of Nature, and to show that its every department has relation to every other. Not only has it been discovered of recent times that disease in almost every form and shape merges in an indefinable way into health, and that a pathological and diseased state is often a mere exaggeration of a physiological state, but that the same great vital laws prevail in health and disease. It is found that the pathological changes in the brain which are connected with, or the cause of, mental unsoundness cannot as yet be definitely separated

from the changes that occur, let us say in old age, in inflammations, and degenerations and diseases of tissue within the skull. The bacteriology of mental disease cannot be separated from the bacteriology of other diseases. The "immunity" that is ever attempted by Nature against hurtful organisms is the same in mental as in bodily disease.

The first thing that science does is to ascertain facts accurately. The second process is to assort and classify those facts, and to place those which are like each other into distinct divisions by themselves. This process has been going on in regard to mental unsoundness since the time of Hippocrates, the father of medicine, who was the first to look on it as a disease of the brain. The first regular system of classification of the disease was the work of two distinguished French doctors, Pinel and Esquirol, in the end of the eighteenth century. Those men not only did this great service to the study of mental unsoundness, but Pinel was the first in Christian countries, along with Mr. W. Tuke, a member of the Society of Friends in York, to treat the insane with humanity, to strike off their chains and stop the cruelties which had previously been the recognized modes of treatment. In this case it was science, not Christianity, which abolished the cruelty of man to man. Esquirol,[1] while recognizing the brain causation of mental unsoundness, based his classification on the mental symptoms alone. His nomenclature has remained, and probably will ever remain, in use in psychiatry. He assorted his cases into those where depression of mind was the chief symptom, and for those he used the old Hippocratic terms of *Lypemania* or *Melancholia*. He placed the patients, whose mental symptoms consisted chiefly of elevation and excitement, under the term *Mania*. Those in whom there was mere intellectual derangement and delusion, without depression or elevation, he called *Monomania*.

[1] *Malades Mentales*, par E. Esquirol, 1838.

Those patients who suffered from a general enfeeblement of mind, an impairment of every mental process, he put under *Dementia*. The patients in whom the brain had not developed from birth he put under *Amentia*, *Imbecility*, or *Idiocy*. Almost every author since Esquirol's time has devised some new classification of his own, or made some changes in, or additions to, that of the French physician.

The discovery in 1820 of what is the most distinct of all the forms of unsoundness of mind, general paralysis, by Bayle, a French physician, gave a new stimulus to the study of unsoundness of mind. Haslam, an English physician, had previously described the essential features of the disease, but he had not segregated it from mental unsoundness in general or given it a name. Bayle pointed out that this disease had special mental symptoms which ran a definite course that could be predicted in all cases, that it consisted not only of mental symptoms but of a form of paralysis and disorders of sensibility. He pointed out that its termination in death could be accurately relied on, and that after death the brain was always found to be markedly diseased in a certain way. This great generalization was not only an important matter in itself, but it turned the minds of all the students of the subject to study the brain and the body together in every case of mental unsoundness, having this as one result, that such bodily symptoms are found in most cases if they are properly looked for. Few things in science have been found until they are looked for.

One of the classifications that attracted many followers was that originally denied by Skae of Morningside, and subsequently extended by myself. It is commonly called the "Clinical Classification."[1] In that an endeavour is made to take the whole causes and natural history of the disease into consideration. It especially takes account of

[1] *Clinical Lectures on Mental Diseases*, 6th ed., p. 12, by the Author.

the relationship of the great physiological periods of life, such as adolescence, childbirth, &c., the concomitant brain diseases such as epilepsy, and the toxic elements such as alcohol and their connection with the special mental symptoms present. The unsoundness of mind resulting from each of those causes is apt to have a special character in some way or other.

The latest classification is that of Kraepelin, the Professor of Psychiatry in Munich, who, curiously enough, has reverted back to mental symptoms and conditions in a way that has been in the course of being discarded, and by some authors, indeed, was being regarded almost with scorn. Dr. Lewis Bruce, for instance, in his recent important contribution to psychiatry, goes the length of saying: "When psychology is divorced from psychiatry, and the study of psychiatry is prosecuted along the lines of advance in general medicine, our knowledge of mental disease cannot fail to be added to. The matter contained in the following pages is based on work so conducted, psychology is omitted." [1] I cannot go that length now, though at the beginning of my professional life I went almost as far.

We had all been looking forward to a pathological classification as being the true one, because it would be based on definite and visible foundations. Those foundations many of us for a long time looked on as being the morbid changes in the brain as revealed by the naked eye and the microscope. General paralysis conformed to this standard. But lately we have been realizing more fully that as all vital functions and all mental energy—in this world, at least—take their origin or expression not merely from the physical characters of the structure of the organs of the body, but from the bio-chemical forces that are ever taking place in the cells of each organ, the results of such action being, to take four examples, the formation or elimination of urine in the kidney, bile in

[1] *Studies in Clinical Psychiatry*, by Lewis Bruce, M.D., F.R.C.P.E.

the liver, blood in the blood-glands, and saliva in the salivary glands. This being so in normal life, it follows that all scientific classification of disease, not only in the brain, but throughout the body, must in some degree depend on those bio-chemical processes and their results. Psychiatry, having come under the dominance of this mode of looking at health and disease, is now being more studied clinically—that is, by the bedside and as a whole. Dr. Bruce, following on lines which Dr. John McPherson[1] had first laid down in this country, endeavours to classify mental unsoundness accordingly. "Toxic Insanities" occupy nearly one-half of Dr. Bruce's book. Dr. McPherson had placed general paralysis among those toxic insanities, thus going to what he believes to be its real cause instead of founding only on its symptoms during life or the morbid appearances in the brain after death. Dr. Bruce and many of the modern students of the subject have most minutely examined the blood of their patients microscopically and chemically. They carefully note the temperature, they subject the patients to the effects of vaccines and serums which act both as tests and as means of cure. But those authors in their careful analyses and descriptions of the patients' mental symptoms have to use largely the nomenclature of Esquirol's mental classification. All the methods adopted for correct diagnosis by the modern neurologist are also adopted by the modern psychiatrist. The whole effect of those new methods of study has been to unsettle the former systems of classification, and we now hesitate finally to adopt any one of them, because we know that it will probably be upset or changed in a very short time as science progresses.

Taking the mentally unsound as a whole, by far the larger number, whether they suffer in minor degrees not requiring hospital treatment, or in the more aggravated forms requiring such treatment, have as their leading

[1] *Mental Affections*, by John McPherson, M.D., F.R.C.P.E.

mental symptom either mental depression or exaltation, with or without excitement, or they are enfeebled in mind after acute attacks, or the brain and mind are not developed, this dating from birth or soon after birth. The two first conditions comprise the *Melancholia* and the *Mania* of the older authors, the third and fourth are the *Dementia* and the *Amentia* of all the writers. The enfeebled in mind from birth come under the terms Idiocy, Congenital Imbecility, or Feeble-mindedness of the recent Royal Commission.[1]

The classification adopted by the recent Royal Commission is as follows :—

(1) Persons of unsound mind, which includes the insane as ordinarily understood; (2) Persons mentally infirm, which covers the aged and those suffering from decay of their faculties, who are thereby incapable of managing their affairs; (3) Idiots; (4) Imbeciles; (5) the Feeble-minded; (6) Moral Imbeciles; (7) Epileptics with mental defect; (8) Inebriates; (9) Deaf and dumb and blind with mental defect.

That may be called an administrative classification devised for practical purposes by a representative body of laymen, lawyers, publicists, and doctors as the result of an exhaustive inquiry lasting several years. They heard a vast number of witnesses, experts, and non-experts for the purpose of solving their important problems; those being philanthropic, medical, administrative, and financial, and chiefly had regard to the duty of the State to the mentally unsound who have not sufficient means for their own proper treatment, and to freeing society from the risks and disadvantages of their presence and their further propagation.

The general result of a review of the classifications, old and new, of mental unsoundness is to lessen the distinc-

[1] *Report of the Royal Commission on the Care and Control of the Feeble-minded*, 1908, in 8 vols., vol. viii., being the report, conclusions, and recommendations.

tiveness of every variety ticketed at present with a name and to increase the importance of the principles underlying them all. We cannot do without psychology, but the psychological classifications have to be modified and brought into relation with modern medicine, with psychiatry, and with administrative requirements. The modern mode of study of unsoundness of mind, which attaches so much importance to the bodily, measurable, and demonstrable changes, is far more on scientific lines than some of the older methods, but no classification is as yet able to cover the whole ground. As it is necessary, however, in a large degree to use the old nomenclature, I shall have to describe unsoundness of mind by means of the terms hitherto in most constant use. The names do not matter so much; it is things, *i.e.*, the symptoms present and the changes going on in the brain cells, that are of most importance.

CHAPTER XIV

THE PRELIMINARY AND EARLY SYMPTOMS

ALMOST all cases of unsoundness of mind, except the forms that are congenital, have preliminary or early symptoms which are either not mental at all or are so little mental in character that they are not recognized as having much relationship to unsoundness. Such symptoms do not readily come under any system of classification. This has not been sufficiently recognized. Its great importance consists in the fact that this is the stage where effective treatment may best come in and where arrest or cure can in some cases be effected. The recognition and treatment of those preliminary symptoms is on the lines of the modern medical idea of the prevention of disease being a far more important and scientific course than its treatment after it has once been established. If we could in a reasonable proportion of cases avert the calamity of an attack of unsoundness of mind, we should thereby save an indescribable amount of misery. In many cases we should save the ruin of lives and life itself. I do not say that those symptoms are always so distinct in their character, or that the indications they give are so absolute that we can tell whether they are a real prelude to mental unsoundness or are only passing nervous disturbances; and still less confidently do I say that, even if we recognized them as preludes to mental attacks, we should by treatment be always able to ward off the danger they point to. Still,

it is well that their significance and meaning should be thought about. In most cases, even when recognized, they are treated as distinct diseases *per se* instead of what they may mean in the future. The very anticipation that a serious attack of disease is coming on is valuable in many cases. If, for instance, we could tell with any sort of reasonable probability that certain patients will be likely to become suicidal, or that certain others will be likely to pass into recognizable general paralysis, it would save risks to reputation, fortune, and life. I believe that very few attacks indeed of unsoundness of mind, even those where symptoms come on "suddenly" and are explosive in character, have not given some indication, mental or bodily, beforehand.

My chief fear in writing this chapter is that I may unduly alarm, through directing attention to symptoms very slight in themselves and of no great importance and which may not always indicate any special aggravation or danger in future. I take, as an example of this, the symptom of headache, which, as everybody knows, is so common a thing that many women especially are "seldom without" a headache during the course of every month, or even for twenty-four hours; and yet certain kinds of headache may be in some persons a precursor of an attack of unsoundness of mind. I therefore warn my readers not to exaggerate the significance of some of the symptoms I am now to mention, but to take them in connection with other symptoms, and especially with the heredity, the history, and the temperament of those who suffer from them. In estimating the significance of such minor symptoms, we must never lose sight of that great quality of resistiveness in the human brain of which I have spoken. But, on the other hand, we must also keep in mind the "Law of Avalanche" through which minor irritations and disturbances in the brain are propagated and diffused until they become very important things indeed. The fact of the solidarity of the brain in struc-

ture and action, through which we cannot have one part affected without some disturbance or other in the whole organ, has also to be kept in mind.

I shall assort some of the most common preliminary symptoms of mental unsoundness under the following headings:—

Sensory Symptoms.—Speaking generally, disturbances of common sensibility are by far the most frequent and the least serious of the disorders to which nervous humanity is subject, though they may be the worst to bear. Headaches, neuralgias, and other bodily pains are in many people not only exceedingly common, but are easily set up by very slight causes. Worry, want of sleep, indigestion, over-fatigue, mental or bodily, excitement of any kind, changes of temperature, menstruation, alcohol, and many other things will set up those pains, slight or severe, bearable or paralyzing. Before we attach any particular significance to them we must find out their causes and character, whether the patient is subject to them, and especially whether they are prolonged and unusual, or whether they tend to become accompanied with insomnia or with a shade of general depression, and whether they affect the general feeling of *bien-être*. Certain kinds of headache and neuralgia, especially coming on for the first time, are in persons of a marked nervous temperament, who have a bad mental heredity, fairly common preludes to attacks of melancholia. When such bodily pains are accompanied by the loss of power of digestion and assimilating food, and the patient steadily loses weight, they are of more significance than they would otherwise be. In many cases of melancholia such pains not only are the prelude to the mental attack, but during recovery, as the mental symptoms disappear, the bodily pain begins to reappear. I often congratulate my melancholic patients when they tell me they suffer from headache, assuring them that it is a sign that they are on the road to recovery. If with such severe headaches the

patient has a vague dread that her mind is giving way, they must never be lightly treated. Very many cases of general paralysis are preceded by severe and prolonged headache.

Sometimes, instead of bad headache or actual pain like neuralgia, there are other sensations present, such as feelings of weight, or lightness, or "bursting" sensations in the head; or there may be giddiness, creeping feelings, feelings of heat or cold, or there may be indescribable "queerness in the head," "soreness," "discomfort," or "a dead feeling." Sometimes there is a diminution or loss of feeling, anæsthesia. Or there is a feeling of faintness and a marked depression in the circulation. Those pains may be spinal, or in the abdomen, or chest, or limbs.

Sensory disturbances may affect, not common sensibility, but the special senses. We may have flashings of light or blurred sight, or singing and other noises in the ears. I have often met with hallucinations of vision and hearing developed before other symptoms of an attack of mania come on. I have even seen perversions of taste and smell.

All those things mean that the sensory and special sense areas in the brain are morbidly affected in some way or to some degree. Those areas lie very close to the mental centres; in fact, are intermixed with them, and therefore it is not surprising that they affect each other when there is any disturbance in either. The chief causes of such headaches are a congenital hyper-sensitiveness, or instability, or tendency to "explosion" of the sensory centres. If the patient has been subject to them, there is not so much fear of their being a prelude to a mental attack. Other causes of sensory disturbances are toxins—poisons—which may be of various kinds. The continuous and severe headache which follows the invasion of the influenzic microbe and the syphilitic poison should never be neglected, because

it often leads, as I shall have to point out, to attacks of melancholia. The headaches resulting from poisons that arise in the stomach and intestine are not so grave in character. Uric acid is, according to Dr. Haig, a frequent cause of sensory symptoms which end in mild neurasthenia, melancholia, and hypochondria. The headaches of nervous exhaustion of all sorts—worry, overwork, &c.—may or may not be of serious import. Headaches from prolonged changes in the blood composition or constituents should always be regarded as serious in their mental import. Sometimes such headaches are sudden, explosive, and "epileptiform" in character; such also should not be neglected, because liability to explosiveness in the sensory areas of the brain usually implies the same tendencies in the mental areas.

In estimating the significance of all those sensory symptoms, the close psychological relationship of sensation to mind must be realized. From this we have the common sequence of, first sensory disturbances and then mental unsoundness. For a perfectly healthy working mind we must have a normal sensory apparatus. Why does sunshine produce cheerfulness? or fresh air a sense of organic comfort? or the sweet influences of Nature mental calmness? The mental areas, in fact, are chiefly got at through the sensory; the one mostly exists for the sake of the other. The senses and the sensory areas are the gateways to mind, and so suffer first. The mind is like a busy city on an island, its food, its commerce, and every source of its life and activity having to be carried to it through the surrounding sea—its gateway. A hurricane in that sea comes on; starvation, misery, and inactivity in the island come next as necessary effects. Sensory disturbances arise first, mental disturbances come next as a natural physiological sequence.

Motor Disturbances.—Disturbances of muscular motion are not nearly so common preliminaries to mental attacks as sensory disturbances, but I have often seen

muscular "fidgets," alterations in the handwriting, and defects in speaking precede such attacks. I have also seen twitchings and convulsions occur. But by far the most marked and characteristic of the motor preludes to mental unsoundness consist of changes in the face and eye expression. The muscles on which those expressions depend are, as I have pointed out, exceedingly small, but have an enormous nerve supply coming directly from the mental areas in the brain. They are also very sensitive, quick in action, and co-ordinate with each other in an intensely delicate way. They respond to every emotion and mental condition as accurately as the galvanometer responds to the electric current. They are, as we have seen, the "mind-muscles." Before an attack of mental disease comes on they often change in activity in various ways. The most common thing seen is a slowing down of their mental reflexes and a deadening of their subtle mechanism. The man about to become unsound of mind is thus commonly changed in his expression of face or eye. His eye is either dull or listless, or the cornea has the feverish light on it which is seen in acuter mental disturbances. The brow is furrowed, or the fixed "lines of care" are accentuated on his face. If he is going to become depressed, the play of feature, that gives the beauty and interest to many faces, is lessened. There is often a fixed and abstracted look in the eye, which means that the power of attention to outward things, the object-consciousness, is lessening, while the subject-consciousness is increasing in a morbid direction. All medical men who have anything to do with nervous or mental diseases study very carefully, or should do so, the working of the "mind-muscles"—that is, the expression of the face and eye.

Neurasthenia.—That somewhat indefinable but very real condition which Beard called Neurasthenia sometimes precedes mental attacks. Its failure of bodily nutrition, its helpless condition as regards all active

exertion of mind or body, its nervous exhaustion all round, have a close kinship to unsoundness of mind.

Insomnia.—Sleeplessness, frequently in a prolonged and aggravated form, is the prelude to at least three-fourths of all the cases of unsoundness of mind, except, of course, the congenital forms. It may precede the mental attack by days, or weeks, or months. The mystery that has surrounded the physiology, the psychology, and the pathology of sleep has never been lifted, although the ablest men have tried to solve it. It is an absolutely normal condition, but in bodily and mental characters it is quite as interesting as is any attack of mental unsoundness. The whole body and every tissue sleep more or less. Every function during sleep is altered from the wakeful condition; the temperature is lowered, and the heart-beats are fewer, but the mind cells of the brain have their functions more completely suspended than other organs during sleep. In addition to sleeplessness, we have as preludes to mental attacks, nightmare, unusual dreaming, and night terrors, semi-conscious sleep, and the short, snatchy sleep. The unrested, exhausted feeling that persons have after sleepless nights is a sure sign of its immediate effects on the working of the brain. I am satisfied that prolonged sleeplessness alone, without any special nervous heredity, may produce, if not technical unsoundness of mind, such brain exhaustion and depression as closely resembles and is akin to a real mental attack. I shall speak of its treatment by and by.

Hysterical Attacks.—In the female sex hysterical attacks are common in nervous young women during adolescence. Hysteria is now recognized by the best authorities to be a condition essentially mental, allied to, and connected with mental unsoundness. It is in certain cases a prelude to mental disturbances.

Circulatory Disturbances.—Many forms of disturbances in the circulation of the blood, and the organs through

which it takes place, occur previous to mental disease. Weak heart's action, palpitation, alteration of rhythm, changes in the vascular pressure, feelings of "sinking at the heart," are all common. There is a variety of depression of mind, which I have called the "quick-pulsed," where this alteration of the heart's action sometimes exists for weeks before the mental symptoms come on. The capillary circulation in other cases often loses tone, the cold-resisting and the heat-producing apparatus suffer. The vaso-motor condition is disturbed, this being especially seen in the climacteric woman, who before having a mental attack usually suffers from flushings, heats, perspirations, and sensations of giddiness. But then very many women have those symptoms without risk of a mental collapse. The vascular pressure is often increased or altered long before attacks of melancholia come on.

Blood Changes.—As yet we know too little of the blood changes preceding and accompanying mental disease, but several of our younger men are working at the subject. Dr. Lewis Bruce finds that in the cases which intermit, having attacks of mental disturbance and then periods of sanity, the blood condition differs in each state, certain of its leucocytes falling markedly in number before the onset of an attack. The explanation of this is that the fight, normally maintained by them against toxins or hurtful microbes, is lessened, which thus invade and upset the working of the mind cells.

Nutritive and Digestive Disturbances.—Nutritive and digestive troubles often precede the mental symptoms for a long time. Indigestion, attacks of vomiting, loss of appetite, falling off in weight, muscular flabbiness, and constipation are all exceedingly common, especially before attacks of depression of mind; indeed, those symptoms, along with altered bowel contents in directions pointing to infection by hurtful microbes and imperfect digestion, are present in at least 50 per

cent. as preludes of the various forms of insanity. I am in the habit of speaking of a "melancholia of the bowels" as preceding and accompanying most cases of melancholia. The acuter forms of mental disturbance and general paralysis are specially apt to be preceded by marked intestinal or gastric catarrh. I do not, however, agree with the views put forward by many of the modern toxic school, which go so far as to attribute most cases of depression, and also excitement of mind, directly to the hurtful microbes originating in the alimentary canal. I am satisfied, however, from my experience that if the digestive, constipative, and nutritive preludes of mental disease were attended to and could be counteracted, it would be in some cases arrested. Long ago Burton quotes Rhasis, "Make a melancholy man fat, and thou hast finished the cure," to which I would add, "Keep fat if thou art prone to melancholy." The cure for melancholia prescribed by Hippocrates, the father of medicine, was severe purging by black hellebore, and the latest scientific conclusions point in that direction, but to a modified extent, and in regard only to certain forms of the disease. We are, for instance, now using calomel in small and repeated doses to an extent much greater than we did thirty years ago.

Menstrual Derangements.—Those are common enough before attacks of mental unsoundness come on. They are usually put down as the cause of the attack, but I believe in most instances they are rather one of the accompaniments. Under [illegible] them, and too much [illegible] to remedy them, [illegible] general health and [illegible]

Mental Pr[illegible]—[illegible] appear as [illegible] subtle psy[illegible] conditions, [illegible]

emotional states, morbid anxieties and fears, accentuations of natural temperament, feelings of "nervousness," irritability, inability to fix the attention on work, loss of energy, "laziness," stubbornness, antipathies, mental automatisms, morbid suspicions, and the beginning of delusions, the nature of those feelings often being realized by the patient.

A general consideration of such facts as I have mentioned leads to the conclusion that an attack of mental unsoundness is commonly not a simple or localized phenomenon. They show that it is often the climax to a general disordered working of the organism. They seem to point to the fact that the lower levels of the brain often begin to suffer and break down before the mental apparatus, which, being the highest level, is last disturbed. In some ways they point to the mental centres in the brain as having a greater resistiveness against disease than the lower. They show that it is in the hereditarily predisposed, those, in fact, whose mental defences are weak, that this mental resistiveness is more prone to break down, for all the symptoms I have mentioned may be present in a brain which has a good heredity, and unsoundness of mind may not result. They point strongly to the importance of a careful study of, and attention to, such preliminary symptoms in nervous persons, and they emphasize the view that unsoundness of mind as a whole should be regarded and treated, not as due to brain disturbances only, but in many patients as a widespread departure from the normal physiological condition of the whole body.

CHAPTER XV

MENTAL DEPRESSION (MELANCHOLIA)

MENTAL depression amounting to melancholia is that condition of unsoundness of mind which is nearest to soundness and sanity. Depression is a state to which it may be said every man and woman may become subject in some degree. It is an emotional disturbance primarily and is almost a corollary of the physiological capacity of feeling. To feel at all implies that we can, for sufficient causes, feel too keenly and feel sadly, just as bodily sensation necessarily implies pain, if certain irritants to the sensory nerves are applied. It is, in fact, a mental pain. All persons of the nervous temperament feel pain very acutely. Most persons who have the power to feel pleasure intensely tend also to feel pain in an equal degree. It is the penalty that the artistic, the poetic, the keen, the sympathetic, the sensitive pay for their pleasures. The poets have notoriously been subject to melancholy, and the oversensitive are the class out of which the melancholics come. Melancholy and sadness are normal to all properly constitued persons when depressing events occur in their experience, but if their brains are normally constituted and working healthily the melancholy should be comparatively short in duration, should not impair their reasoning power, should not produce in them delusions, should not interfere with their self-control very greatly or the capacity to do their work, should not

cause prolonged insomnia, and should not interfere much with the general nutrition of their bodies so that they become emaciated. It should not change for long their expression of face and eye, and should not disturb for any length of time the organic working of their bodily organs. Those constitute the distinctions between the melancholy of the rational man and woman and the melancholia of the mentally unsound. It is true that the one sometimes runs into the other, and the causes of the one are often the causes of the other, but they are distinct physiologically and pathologically, and should not be confused with each other.

Unsoundness of mind with depression usually begins gradually. There are often preliminary headaches, neuralgia, lassitude, above all, sleeplessness and loss of appetite. There then comes a loss of the organic sense of well-being, which is present wherever health exists. The pleasure which mental work and muscular exercise should give disappears, and output of energy in any direction becomes a pain. Spontaneity is lost, there comes an exaggerated self-feeling, and a diminution of object feeling. All this time the patient is sane in the popular sense of the term, and if the depression goes no further, he remains at home, or at all events is not sent to a mental hospital. He should always be regarded as curable at that stage, and measures towards that end should be adopted as soon as possible. We have no means of estimating the prevalence of this minor condition of morbid depression or "simple melancholia" in the world, but I am satisfied that it is extremely common in our highly educated, sensitive, artistic, and city-bred classes. Changes of scene, not implying too rapid travelling, rest in the proper way, fresh air night and day, the sun with its healing influence, social enjoyment without excitement, suitable diet of an easily digested kind, tonic medicines, are the proper restoratives and remedies for most persons in this condition.

This state of simple depression may last for years, but it usually passes off quickly. When it disappears the mental soundness is left unimpaired and the faculties and powers of work uninjured. It very seldom becomes incurable.

In the cases which do not recover, the condition of simple melancholia tends to deepen and become much more marked. The mental pain gets much more intense, it passes into an intense mental neuralgia. The patient's power of reasoning, as well as of feeling normally, is impaired so that delusions appear. The range of such delusions covers all the interests of human life. The patient thinks he is a great sinner and that his soul is lost if he has been of a religious turn of mind. Or he imagines that he has lost all his money and so is ruined. You may show him his bank book, you may bring him his business accounts, which tell of prosperity and wealth, but this has no effect whatever in dispelling his fancies. That is one of the great characteristics of insane delusion as contrasted with mistaken beliefs. Evidence to the contrary has little or no effect whatever on persons suffering from such delusional ideas. They are part of the unsound working of the brain, and if anyone over doubted the dependence of sound mind on sound brain he has merely to talk to a melancholic patient, otherwise intelligent, but with those fancies. I saw the son of a man who had the idea that he could not pay his hotel bill put down on the table fifty sovereigns with no effect whatever in dispelling his father's morbid belief. Others imagine they are watched by the police and going to be executed for their imaginary crimes. Others believe they cannot or should not take food, and so refuse it.

The delusions which refer to the great organic functions such as nutrition, sex, love of children, are more apt to be persistent and severe as well as more prolonged than those which refer to money or position in the

world, on such secondary matters. Very often the character of the delusion takes its form from some real feeling or circumstance. I had a female patient once who was depressed and had the belief that the devil was inside her, and that he was causing her pain about the stomach; in a short time a cancerous tumour was discovered there. Her mind had misinterpreted the cause of a real pain. It is a very frequent thing to have delusions of poisoning founded on the uneasiness and pain of real indigestion or toxic irritation.

Suicidal Feelings.—In about three-fourths of all the cases of depression in the mentally unsound there is developed a symptom in which the primary instinct of a human being is changed and reversed. The love of life weakens, disappears, and there takes its place a desire to put an end to life which may amount to a craving for death with persistent, determined, and cunning attempts to accomplish that object. This suicidal impulse constitutes the great peculiarity and the special responsibility attaching to the depressed form of mental unsoundness. It may exist as a simple desire for which no cause can be given, or reasons are given such as the most illogical one—the fear of being tortured or being put to death—and if this is a symptom there needs special care to be exercised over such a patient. Or he says that he is hearing voices which tell him to put an end to himself, a very bad symptom; or there is a simply ungovernable, unreasonable, morbid impulse which takes possession of the mind. The friends of a patient who expresses the fear that he is going to be put to death are commonly confident that there is no risk whatever, "because," they say, "he is too much afraid of death." Many patients know that to commit suicide would be wrong, and in a way they revolt and strive against the tendency, yet cannot help yielding to it. Many are able to take into account that it would be a disgrace to those nearest and dearest to them, yet

the morbid overcomes the natural feelings. I have seen a mother throwing herself on the floor in agony and beg me to help her to resist the tendency for the sake of her children.

The suicidal tendency may arise or be strengthened by seeing the means of committing it. For instance, a knife, or water, or a bottle of poison may suggest suicide. This tendency, as well as the accompanying depression, is in most cases stronger in the morning after waking than at any other time of the day. This is the time, therefore, the patients have to be most carefully watched. The actual carrying out of suicide depends much on the natural courage and the strength of the religious and moral principles. Fewer suicides by one-half occur among women than men, although the actual desire is as frequent in the one sex as the other. Each patient often has a special method of carrying it out, and there are prevalent modes of suicide in each sex and in different nations. In some cases it comes on sharply and suddenly without much warning, and in other cases it has a long prelude of depression. The tendency to suicide often runs in families. Suicidal impulse is in a few cases combined with the desire to kill others. The fact of a mother's killing her children and then destroying herself is often reported in the newspapers and is an example of this combination.

The number of suicides varies considerably in different countries. At the present time Germany heads the list. It is less frequent in the Roman Catholic than the Protestant communities. It may occur at all ages ; cases have even been known of children under ten committing suicide, while there are records of men of ninety doing so. Its greatest prevalence is from forty to sixty-five years of age, which is also the age that the depressed variety of mental unsoundness is most commonly met with, being the time of life when the climacteric in both sexes occurs, and when the general process of decadence

of brain and body has begun. There are about one thousand six hundred deaths from suicide each year in Great Britain.

There is a special form of melancholia which is accompanied by much mental confusion, restlessness, excitement, agitation, wringing of the hands, moaning, shouting, violence, and a desperate obstinacy—"excited" or "acute melancholia." Those patients often have hallucinations of the senses, especially of hearing; the temperature is apt to rise somewhat above the normal, and a careful examination of the secretions of the body shows that the cause of this form is some form of blood-poisoning. The stomach and bowels are deranged in a high degree. The blood shows an excess of certain of its constituents, and the pulse is feeble and rapid, but in some cases of high tension. In delirium tremens we have typical symptoms of this acute variety of melancholia. The body weight tends to be reduced in most cases of melancholia, but it falls very rapidly in the acute and toxic varieties, which is also much the most fatal form of the disease.

There is a variety of the disease where the patient's depression concentrates chiefly on his own body and its functions—the hypochondriacal form. He thinks he is all out of sorts, that he cannot digest his food, that his bowels will not act, that his heart is weak and is going to stop, or that he is impotent. There is no end to such body fancies. There are others where serious delusions about ruin, about persecution, and about unpardonable sin, from the beginning, seem to dominate the patient, and his friends attribute those delusions as being the cause of his depression and say he would be all right if he could get rid of such ideas. That is not so. It is the depression, not the delusions, that is the primary and basal disorder. Those we call cases of "delusional melancholia." When those delusions get "fixed" we do not take so hopeful a view

of their recovery. In other cases the mental condition combines great confusion or even stupor with the depression. Those we call the "confusional" cases. I shall refer to them later. There is, along with the confusion, apt to be an obstinate unreasoning resistiveness to everything that nurses want them to do—to dress, to undress, to eat, to walk, or to employ themselves. We now suspect a toxic condition of the blood acting on the brain in such confusional-resistive cases.

Treatment.—There is a great deal in common between the treatment of the various forms of unsoundness of mind. The treatment of melancholia, however, has certain special features of its own. Suicide must always be guarded against where the tendency exists, and there is only one mode of preventing it, namely, a constant watch being kept over the patient, who will often exhibit extreme cunning and determination in carrying out his object. In all cases where body weight has been lost and is being lost, the sheet-anchor of treatment is to restore the nutrition of the body, and with the body, necessarily of the brain. It may be laid down that those foods which the patient specially likes and that agree with him should be taken in as great quantity as he can digest. In most cases non-stimulating food such as milk, eggs, fruits, farinaceous diet, and only white meats and fish will be best. Alcoholic stimulants such as light wines and malt liquors, used dietetically and with food, will in many cases act as tonics, but they should not be kept up too long. Preach and practise the gospel of fatness in season and out of season to all melancholics. Nerve tonics, such as quinine, the mineral acids, strychnine, iron, and digitalis are often indicated. In all cases the bowels should be most carefully attended to—antiseptics such as calomel and salol being useful. The natural mineral waters at the various spas and the life there are very good for the patient in the early and also in the convalescent stages. Special baths are often useful.

One of the most difficult of all the problems in treating melancholia is how to overcome the sleeplessness. We now possess many admirable hypnotics, such as paraldehyde, veronal, sulphonal, trional, and the bromides and their combinations. The opinions as to the value of opium, the old standby, are most various in the medical profession. Some praise its value in nearly all cases of depression, others avoid it as much as possible. I am one of those who do not believe that opium is a good medicine in melancholia, except in a very few cases, but I admit that those cases, when they occur, are exceedingly striking. Most physicians in Germany and America, however, hold that in small doses it helps to restore the brain, improves the body nutrition, soothes the nervous depression, and altogether tends towards recovery in very many cases. In regard to all such medicines, however, I would say, and say strongly, "Do not use them until other means of restoring sleep have failed, and begin them, when you have to do so, in small doses and experimentally. After trying them for a short time, stop their use to see if the periodic habit of sleep has been restored." My experience is that you cannot always tell the particular hypnotic or sedative that will suit any patient until you have tried it. Paraldehyde and veronal are the types of pure hypnotics—paraldehyde acting within ten minutes in most cases. If an after-sedative effect is desired as well as sleep, then sulphonal and the bromides, alone or in combination, are the best medicines to use. The bromides accentuate and prolong the effects of most sedatives and hypnotics, and I use them largely for this purpose. We must always keep in mind, however, the possible formation of a drug habit and a morbid craving being set up from the too prolonged use of such medicines.

To restore sleep, however, other measures than hypnotic drugs should be adopted before they are

used, and concurrently with them—much fresh air, open windows at night, change of air, a sea voyage in non-suicidal cases, hot drinks at night, warm baths, massage, skin friction at night, hot-water bag over stomach on going to bed, strict attention to the state of the bowels, cold affusion to feet and legs below the knees with vigorous rubbing afterwards. Some forms of hydro-therapeutics are useful. Strict punctuality in the time of going to bed, reading some unexciting book before turning in, doing the multiplication table or the alphabet backwards on going to bed, going over the incidents and scenes of old journeys, trying to visualize familiar people and things—those are successful with different people. But all those may fail, and the curse of insomnia may persist, so that drugs may have to be resorted to, a drug sleep being better than no sleep, if the right drug can be hit on. Sleeplessness is undoubtedly more common in modern life than of old, when men led quieter and more routine lives.

As important in most cases, and more important in many, than direct medical treatment of depression, comes the nursing, the régime of life, the rest, the exercise, the fresh air, the occupations, the amusements, and the change of scene. A good nurse or companion, sympathetic, firm, human, and persuasive, well trained, realizing the dangers, and willing to put a portion of her own cheerfulness into the patient is almost the first requirement. Such nurses are to be had, but not every day. It is exhausting work if conscientiously done. Nowadays we are inclined to put our patients to bed for a time in the early part of many cases, and during the greater part of the time in the markedly toxic cases, so as to give them as absolute rest as is possible; but there comes a time when exercise, fresh air, change of scene, occupation, and amusement is indicated and essential. All melancholics should not be put to bed. I have seen many of those who were complicated with neurasthenia

put to bed and subjected to massage and the Weir-Mitchell treatment with most hurtful effects. They began the treatment depressed neurasthenics, they ended it suicidal melancholics. In regard to travel, do not send the patient to exciting, rapid travel in any case. In regard to fresh air, we cannot have too much of it for our melancholics; they should, when put to bed, be in the fresh air or partly so. They need it as much as many consumptives, and it often does them as much good. In the most up-to-date mental hospitals now the newly-admitted patients are largely treated in shelters out of doors, just as if they suffered from phthisis.

As to how depression ends, about 80 per cent. recover, if we take into account both the lesser and the graver varieties. If we take only the cases so severe as to have been sent to mental hospitals, about 54 per cent. recover. The younger cases on the whole have a better chance than the older. Those with fixed delusions, hallucinations, irritations of the skin, convulsions, very prolonged suicidal tendencies associated with delusions, and those with persistent refusal of food, are the worst cases, and are not so apt to recover. But never give up hope of a patient's recovery so long as depression persists. I have known such cases recover after twenty years.

Slight conditions of mental depression usually precede, for periods more or less short, all other forms of unsoundness. Patients whose disease turns out to be mania or general paralysis very commonly have a short initial stage of depression.

CHAPTER XVI

MENTAL EXALTATION (MANIA)

THE forms of unsoundness of mind which have depression as their characteristic and necessary symptom are marked off with a reasonable amount of clearness from other varieties. The forms of mental unsoundness of which I am now to speak are not so definitely distinguished by any necessary emotional or other mental peculiarity; but the typical cases are in a state of elevated emotion. Their mental inhibition is far more impaired as a class than the depressed in mind. Their reasoning and common sense are much more in abeyance, and a larger proportion of them are "off their heads" in popular estimation. Conditions of emotional exaltation do not cover mania as fully as conditions of depression cover melancholia. Mania includes persons who exhibit rage as well as morbid happiness, who are excited, restless, shout, are violent, and also those who are quite delirious and incoherent. The difference between the terms exaltation and excitement is this: that the former means pleasurable emotional feeling, the latter means the muscular expression of that and irritated feeling in eye and face and action. The two go together in mania far more evidently and universally than in melancholia. There are some excited melancholics: most cases of mania are more or less excited. Melancholia is defined from the subjective

point of view, like neuralgia. Mania is thought of from the objective point of view, like convulsions.

While conditions of mental depression may be artificially and temporarily produced by poisons like antimony and the influenzic toxin, conditions of exaltation may be produced much more readily and definitely by such poisons as alcohol, Indian hemp, oxygen in excess, increased temperature of the brain, and many toxins. There is also this difference between the two conditions: there cannot be said to be a necessary melancholic phase in a perfectly normal man at any period of his life, although during the end of adolescence many great writers and poets have passed through such a phase. On the other hand, every healthy human being passes through a phase of exaltation both in feeling and conduct during childhood. I mean that if any mature man or woman exhibited the restless joy, the firm belief in castles built in air, the want of control, the incoherent "prattle," and the other delightful characteristics of childhood, he would unquestionably be regarded as labouring under a simple form of mania. It is also true that in persons of the excitable nervous temperament, and in many women, the effect of joyous news or circumstances, or a peculiarly exciting event, will produce conduct exactly resembling that of mania; but this state soon passes off, and is physiological and normal for that particular type of brain. If Dr. Mercier's important test of sanity is applied—namely, that it is conduct and not belief which is the true test—then many melancholics are sane, while almost all cases of mania are of unsound mind.

Conditions of elevation, as I have said, often have a short and slight prelude of depression. I shall refer to the connection of the two conditions and their tendency to alternate afterwards. Some of the more marked premonitory symptoms of a mental attack which I have referred to (Chapter XIV.) are more apt to precede an

attack of mania than one of melancholia. Especially insomnia precedes and accompanies elevated conditions almost invariably. Probably the most common of the early symptoms of mania is covered by the word "unsettledness." There is restlessness and lack of power of continuous attention to any subject or to work. The thoughts are less under control, the imagination more vivid, the patient talks more, the conservative and regulating effects of past life, custom, and habit are broken down. The fitnesses and the conventionalities—those minor codes of morality which often count more in life than the Ten Commandments—are departed from. Common sense is lost so that the man says and does things that astonish his friends and make them say, "I did not know that —— was such a fool." His social instincts expand so that he associates with and talks to people not in his own rank of life in a way he was not accustomed to do. The man is instinctively felt by his friends to be no longer "reliable" from a business or social point of view. He becomes extravagant, he is "let in" for schemes which before he would have avoided. I have known a man in that state whose previous life had been especially distinguished for prudence, caution, morality, religious feeling, and business success, who ruined himself in twelve months by risky speculation, and yet all the time could scarcely have been certified and controlled as technically insane. I have only known one man in whom good fortune attended the morbid imprudence of mania, and he made £20,000 in a month. Social instincts are expanded, the animal appetites are usually increased, and there is less control over them; yet all the time the man may be coherent in speech, and may be bright and witty to an extent that was not natural to him. I have seen dull men in this condition for the first time in their lives become really interesting and pleasant companions. I have known men who had never published a line in their lives write

brilliant articles, and especially write, or attempt to write, poetry in this condition. The memory is often extraordinarily increased. I knew a man who could, during this phase of his life, repeat accurately many of the psalms and whole plays of Shakespeare, which he could not have done in his normal condition. The latent and "sub-conscious" content of the brain-cells crops out.

There are two varieties of this condition of early or "simple mania." The one is that I have just described. The other is that where irritability and a cynical humour is the type of mind instead of the happy state I have described. In this state of mind the man says rude things to his friends, takes pains to tread upon their most tender corns, remarks on their peculiarities, differs from them ostentatiously in opinion, cannot abide contradiction, becomes a perfect nuisance at home, and quarrels with most of his friends. He exhibits senseless dislikes. Dr. G. M. Robertson went fully into the distinction between these two forms.[1] In both cases self-control is not completely lost, but is diminished in greater or less degree. Such people can appear for short periods, or before strangers, natural in their ordinary behaviour and speech. I once met such a man at dinner, and it was only after the second glass of wine that he began to show the peculiarities I have mentioned. By the time he had finished the fourth glass he was, for him, ridiculously boastful, irritable, and rude when any of us differed from him, this conduct being in no wise natural to him. It was a good pathological example of *in vino veritas*.

A marked peculiarity of this and all other conditions of elevation consists in the fact that no consciousness exists that there is anything wrong with the patient on his part, but most likely there is the opposite feeling, which I have hundreds of times heard expressed in the words, "I never was so well or happy in my life"; "I

[1] *Journal of Mental Science*, vol. xxxvi. p. 338, July, 1890.

feel uncommonly fit"; "I can do twice as much work as usual." This contrasts markedly with the depressed conditions of mind in which patients are too painfully conscious that they are ill and unfit for work, even exaggerating their unfitness.

It can easily be realized by any one that such a condition is extremely difficult to treat and to manage. The dangers to reputation, official position, and fortune are often imminent and almost unavoidable. The man resents any idea of control. It is often difficult by subterfuge or otherwise to get him away to a quiet place from life in a city and frequenting of his club, &c., which always aggravate his condition. Most melancholics, on the contrary, are willing and, in some cases, eager to be treated.

Acute Mania. — The condition of simple morbid elevation may last for weeks or months, and then, without any aggravation, may gradually pass off, but it often goes on to a further stage of mental dissolution and change, the evidence of which is seen in greater elevation or irritability, lesser self-control, more absolute change in habits, appearance, dress, and general conduct. The moral nature breaks down; truthfulness, honesty, chastity, sobriety, duty disappear as if a moral reversal had taken place, and the devil had suddenly entered into the man. The man's habits and feelings become degraded; he may even become destructive and violent; coherence of speech is lost; he shouts or sings; the expression of his face and eye becomes excited and wild. He loses weight fast; his temperature rises a degree or more; his sleep is altogether lost; his mind is in a state of confusion; he cannot fix his attention on any subject for a moment; his tastes for food and drink are entirely changed; the bowels may be either too active or too constipated; the secretions of the body are all altered more or less; the blood is changed in its constituents, there being unusual development of the leucocytes. The

man is, in fact, "raving mad" or acutely maniacal. This condition of "acute mania" may come on, in a few cases, without any prolonged prelude of simple mania. I have seen it arise in a few days, but this is rare. I have, indeed, seen it arise in an hour or two, but this is rarer still.

Delirious Mania.—The furthest and the ultimate stage to which mania can go is that of the delirious or "typhoid" mania of some authors where the mental dissolution is complete, the speech absolutely incoherent; where there is muttering, a quick pulse, a high temperature, and extreme danger to the life of the patient. In such cases we now believe there is always an acute toxic condition.

There is a morbid condition which is exceedingly common in most cases of mania which assume an acute form, and in others where the change is not so complete. It is that of hallucinations of the senses. The patient believes he hears voices which are imaginary, or that he sees persons or objects which are unreal, or his sense of taste and smell is perverted. I have seen a dog fancier, for instance, in a state of mania, have the vivid hallucination that he saw his dogs before him. He would address them by name, and give them orders just as if the real dogs had been there.

Most patients suffering from mania have also delusions. This state differs from that of hallucination, being a false act of reasoning, having nothing to do with the special senses. For instance, if a man believes that his friend is persecuting him and betraying his interests without any cause for this whatever, or that he possesses a million of money when he has no means at all, those are insane delusions; if he imagines he sees his friend in the room that is a hallucination of sight. Such delusions in the case of a patient suffering from mania may take the form of exaggerated ideas of wealth, power, position, prospects; or, in the angry and suspicious cases, they may take the

form of unfounded suspicions of and persecutions by other persons.

It is a very sad fact that this condition of exaltation, with or without much excitement, is nearly always accompanied by a diminution of affection for relations, and often by delusions and morbid suspicions about them. In addition to the terrible pain of this to those nearest and dearest to them, this results in loss of control or power of guidance of the patient by those to whom that duty would naturally fall. It means that the nursing and attendance must usually be undertaken by nurses or strangers to the patient.

A maniacal patient is often violent to those about him, but very seldom dangerously so. He does not scheme and organize attacks on other people as some cases of monomania do. When a case of mania becomes acute, the memory is blurred, so that no event or occurrence can be afterwards recalled accurately, though the patients often think they remember everything.

The effect of such a disturbed and explosively acting condition on the human brain cannot be realized until we first consider what the cortex of the brain contains, and how it is constituted, as I have endeavoured to explain (Chapter V.). Its millions of cells and connections, its thousands of centres, and the hidden memories that lie within it are upset and dissociated in working. In its constituents and mechanism lie the whole previous mental life of the individual, his transmitted qualities from his ancestors by heredity, and all his experiences. Think of those all having undergone change, disturbance, upset, dissolution! Think of the balance-wheel being completely removed from a delicate chronometer and you have a faint analogy of the effects on the brain of an attack of acute mania.

When the mania becomes acute the expression of the face and eyes is completely changed; no natural beauty can resist it. The mind-muscles show excitement,

delirious joy, intense rage, morbid emotion, or black, wild confusion; the cornea has a feverish gleam, the eyelids are open wider than usual, and all the facial muscles are in a state of intense strain, their co-ordination failing to express normal mind.

There are some cases of this form of mental unsoundness which are characterized by delusions and hallucinations from the beginning, those being essential elements of the attack. There are other cases where, especially in the early stages of the acuter forms of the disease, homicidal impulses occur. I knew a gentleman attack his brother with homicidal intent at dinner, that being really the first marked sense of mental disturbance. He had had previously only those signs which I described as the preludes of attacks of mental unsoundness. Such sudden cases are often epileptiform in character, the brain explosion taking place in the mental centres instead of the motor centres.

The conditions of exaltation are not so common as those of depression. Far more of them require to be sent to mental hospitals for treatment. From 50 to 60 per cent. recover.

Attacks of mania require to be distinguished from the mental effects of alcohol and of poisons. Fevers and inflammations also simulate them; injuries to the head also may cause similar symptoms.

Brain-cell Risks.—Looking to the conditions of mania in its acuter forms, and its symptoms bodily and mental, such as I have described, and taking into consideration the infinite delicacy and complexity of the brain cortex, we are naturally afraid of structural damage to the cells, more or less permanent. During the progress of such an attack, if the patient should die, as happens in about 8 per cent. of the acute cases, the capillaries of the brain are found much congested, so that in many cases they have burst, and minute microscopic clots of blood are seen. But it is in the cells themselves that the most

marked changes are seen. Especially in the cases where a poisoning has taken place—the toxic cases—large numbers of the cells are found to be strikingly altered in their appearance (cf. Fig. 10). Many of the cells

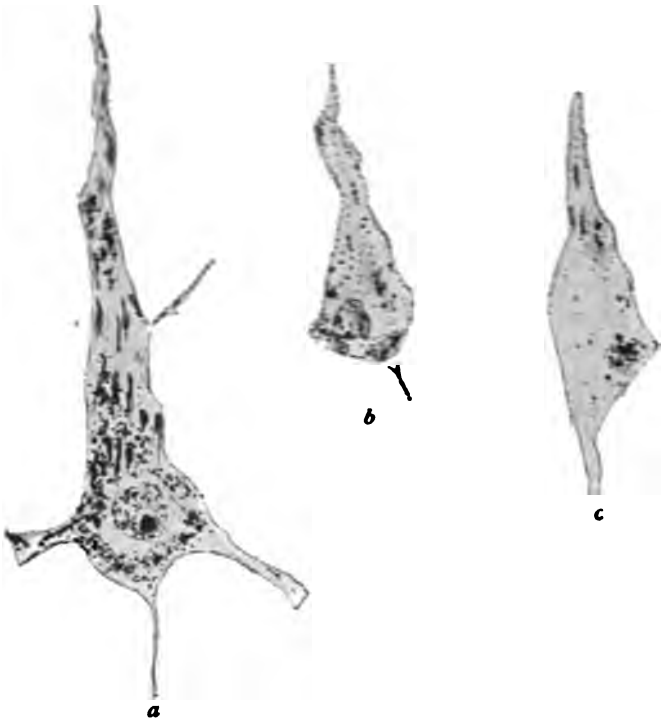


FIG. 10.—SUCCESSIVE STAGES OF DEGENERATION AND DISEASE OF THE BRAIN CELLS FROM CASES OF MANIA.

a. Early stage. Cell damaged somewhat. *b*. Midway stage. Cell much damaged. *c*. Last stage. Cell almost destroyed.

have undergone various processes of degeneration. Many of them show losses of substance, their drainage system is partially blocked up, and their supporting tissue, the neuroglia, shows signs of commencing change. It is in such cases that we fear a state of

permanent enfeeblement of mind, "Secondary Dementia," will result. The brain cell differs in the following ways from any other cells in the body. It can never be replaced if diseased or destroyed beyond a certain point. It never multiplies itself, the number of cells at birth being exactly the same as those at mid-life. The great fear in mania is that many of the cells will have passed beyond the boundary line where recovery is possible, as in *b*, Fig. 10. In all cases, therefore, it is of the highest importance to cut short such an attack, if that is possible, to diminish its intensity, to do everything that is possible for its speedy recovery. The common terminations to attacks of mania that do not recover are "Secondary Dementia" or incurable mindlessness, or chronic mania, or a permanently delusional condition of mind—monomania, or "paranoia."

Treatment.—In addition to the general indications for treating all unsoundness of mind, the conditions of exaltation need special measures to be adopted in most cases. The simple cases of exaltation without much excitement are often exceedingly difficult to manage, as I have said, on account of the patient's waywardness and want of realizing that any special treatment is needed. The treatment implies much responsibility in some cases on account of the social and pecuniary risks I have mentioned. The great indication is to get the patient away to some quiet place out of a city, where he can have abundance of fresh air and exercise, suitable games, and a certain amount of personal control. To go away with a friend, or a suitably trained, pleasant-mannered man-nurse to a quiet golf course or fishing-place, and to be out in the fresh air all day, fulfils this perfectly. We sometimes use continuous doses of the bromides to take the edge off the too abundant activity and irritability, and add a hypnotic, such as veronal, to promote sleep. I believe in abundance of food, but mostly of non-stimulating kinds, avoiding too much beef and mutton.

Too much letter-writing, reading, or any other brain work should be avoided. I have also seen a long voyage, not in a crowded passenger steamer, suit such cases well. If, when the attack lasts long, they have any relations or friends in a quiet, healthy colony, like New Zealand or Canada, where they can go back to nature, and do work on a farm in the fresh air, the indications for proper treatment and ultimate recovery are fulfilled in the milder cases.

Rest.—It must be always kept in mind that an attack of exaltation, in its acuter forms, often results from previous brain exhaustion, and the treatment must be supporting and tonic, and frequently stimulating, especially when the attack has lasted some time. The undue output of energy, mental and bodily, the increased temperature, the sleeplessness, the general explosive condition of the brain, the toxic condition, if such exists, the general secondary disturbances in the bodily functions, which are apt to accompany such an attack, all indicate rest rather than exercise in some cases. Nowadays we, in the acute stages, keep such patients in bed for a time, feeding them up with milk, using medicines that promote digestion and are tonic, using also those that are eliminative—that is, that promote the action of the bowels, kidneys, liver, and skin ; thus we get rid of waste products that are hurtful and of the toxins which may exist. We also nowadays use antiseptics for the contents of the bowels, such as calomel, quinine, salol, and beta-naphthol, and lactic acid ferment, the so-called Metchnikoff treatment, or such patients are often fed on sour milk for weeks together with very good effects. In cases where toxins are suspected to exist in the intestinal canal it is well to give this a trial. In the most acute and the most exhaustive forms of mania, such as those that occur after childbirth, we have to use a considerable amount of alcoholic stimulants and quinine in very large doses. The old idea of restraining the movements of acutely excited

patients by strait-waistcoats, &c., is completely given up now. Experience showed that such means caused intense irritation, preventing proper outlets for the superfluous energy, and that the patients died under such treatment in large numbers, those not dying having a poor chance of recovery.

In regard to the use of hypnotic and sedative medicines for the sleeplessness and the acute excitement, the remarks I made under conditions of depression apply to those of exaltation.

Baths.—In the very early stages of an acute attack of mania it is possible at times to arrest the brain disease. This is done by prolonged warm baths, along with the sedatives, continuing the treatment in some cases for hours, or even days together, but the temperature should not be raised above 98° on account of the danger to the heart and fainting. In the fortunate cases, after a few days of such treatment, the excitement passes away and does not return again. It is our hope for the future that surer methods of treatment which can arrest the attack at the beginning will be devised. There are some cases of so violent a nature, and where the patients will not take medicines by the mouth, that the hypodermic injection of hyoscine from the one hundred and fiftieth of a grain to one seventy-fifth is indicated.

Nursing.—The nursing staff to treat a case of acute excitement out of a mental hospital must be large and experienced, night and day supervision and care being provided for. Such nursing is mostly irksome and requires some of the highest human capacities, mental, moral, and physical. Nowadays such nursing is to be got in the shape of certificated mental nurses, male and female, which were not available thirty years ago. The place in which a patient in that condition should be treated should usually be on the ground floor of a house in its own garden or grounds in the suburbs of the city, or in the house of a doctor where medical attendance

can be readily obtained. It goes without saying that those powerful sedative medicines of which I have spoken should never be given except by the orders and under the supervision of a physician, and should not be left to nurses, even the best.

A Mental Hospital or Not?—There is a very important question, relating to the treatment of all cases of mental unsoundness, but particularly to those of exaltation, which has in most cases to be faced up and decided. That is whether the patient shall be treated at home, in hired rooms, or shall be sent to a mental hospital. A good mental hospital now possesses all the means for the treatment of almost every class of mental unsoundness. It is placed in a healthy situation with bracing air, large grounds, extensive walks, suitable arrangements for all kinds of diet and healthy régime of life, order, system, a large staff of trained nurses and medical attendants. It has proper rooms for violent cases, and varied architectural arrangements so that the room shall suit the condition of the patient. It always has nowadays a special hospital, as a part of the main hospital, for the treatment of acute bodily conditions, conditions of weakness, and where very special nursing is required. It has suitable occupations and amusements, and means of classifying the patients. Such hospitals have also villas and seaside residences for convalescents or mild cases. If the unfortunate prejudices against such splendid institutions, constructed and managed on the most recent medical and scientific principles, could be got rid of, most cases of the acuter forms of mental disease would be sent and treated there, just as the infectious diseases are now sent and treated in isolation hospitals, and most surgical work is done in general hospitals or surgical homes.

Voluntary Admissions.—In all such hospitals patients, if not very ill, can be admitted voluntarily without medical certification and a magistrate's order such as is needed where a patient is placed there against his will. This

voluntary system of admission, if it could be by any possibility made more general, is, however, more suited for treating incipient and short attacks, because you in that way carry the patients with you in their treatment, and the irritation of compulsory treatment is avoided.

Psychiatric Wards in General Hospitals.—In some places there has arisen recently a practice which will be a vast gain and blessing to many of the persons of unsound mind in the beginning of an attack or when it is of short duration. That is the provision in general hospitals of special wards for the treatment of mental cases, without medical certification, for short periods of a month to six weeks. This is in working order for the poorer classes in Glasgow, Albany, New York, and in Melbourne. Another mode of fulfilling this same purpose is to provide special small hospitals for recent cases alone without certification or a magistrate's order. Dr. Maudsley, who is now the unquestionable head of psychiatry in Great Britain, has been so impressed with the value of this, not only for the cure of such cases of mental disease, but for the further scientific study of psychiatry, and its teaching to medical students, that he has munificently offered to present the London County Council with £30,000 to erect such a hospital.

But unfortunately there is another side to the mental hospital. Mental disease is so distressing a condition in most cases, it has excited such terror, repulsion, and prejudice in the human mind through the cruelties formerly perpetrated on the insane, and also through the exaggerated description of the "madman" in literature, that even now the man who is sent to a mental hospital is frequently regarded as damaged for life and unfit for future employment. His prospects in life are thus injured, and in a way his reputation is damaged. This cruel phase of public opinion and those adverse facts to the patient must be taken into account, however irrational

they may be. Among the poor, where no suitable means of treatment or nursing can be obtained at home, there can be no doubt whatever that a mental hospital is the proper place of treatment for all the acute cases, and the sooner a patient goes there the better, because early treatment gives a much better chance of recovery than where it is unduly postponed.

More than half of all the cases of marked exaltation recover, about one-third pass into dementia, and the others either recover partially or pass into delusional unsoundness. Those statistics do not, however, take into account the not unfrequent cases of mild exaltation, for which hospital treatment is not needed, and who recover in much larger numbers.

CHAPTER XVII

PERIODICITY AND ALTERNATION IN HEALTH AND DISEASE—MANIC-DEPRESSIVE AND CIRCULAR MENTAL UNSOUNDNESS—*FOLIE CIRCULAIRE*

ALL life and all vital function have more or less of periodicity of action. The flow of nerve force from the neurons is not a continuous stream, but always intermittent. Sleep is the best example of periodicity in the action of the mental part of the brain. The beats of the heart, the temperature of the body, the breathing, the appetite for food, and the activities of all the glands exhibit periodicity. The reproductive function in all its forms is markedly periodic. We find mental action responding to those physiological periodicities and showing marked periodicities of its own. The period of reproductive and sexual activity is always in both sexes a time of mental exaltation, courage, pride, activity, imagination, display, pugnacity, restlessness, joy in life, strivings after the ideal, and those are all exhibited in relation to this periodicity. Many animals are completely changed; from being shy and fearful they become bold and obtrusive, their habits changing in many essential ways during the reproductive activity. The combative, protective, and providing instincts take the place of the gregarious instinct. As to man, there are thousands of us who are duller in the morning and more lively in the evening, or the reverse; we are duller in winter, and more elevated in the summer; we are

irritable at periodic intervals; many are subject to mild moods, cravings, obsessions, and impulses, with diminished control, periodically.

The periodicity of symptoms in certain diseases, the high temperatures recurring every night, the tendency of many fevers to end in three and a half, seven, fourteen, or twenty-one days, the striking periodicities of the stages of ague, the daily return of many forms of neuralgia, are examples of pathological periodicities.

It had always been recognized by mental physicians since the modern clinical era of the study and treatment of mental unsoundness began, that conditions of depression and those of exaltation might be related to each other, that the patient suffering from the one might pass into the other, that this sequence might become periodic, and therefore that they should be studied in relationship to each other. A form of unsoundness of mind where this periodicity of recurrence and alternation occurred regularly for long periods was described as a separate form of mental disease under the name of *Folie Circulaire* by two French physicians — Falret and Biallarger. In this disease there are regularly remitting and recurring periods of mental exaltation, depression, and sanity. The patient, in fact, may be said to live three lives, during each of which he is in a different condition emotionally, intellectually, and in conduct. In the period of exaltation the man is exalted, restless, often brilliant; but in most of the cases the condition does not go on to incoherence or an acute maniacal condition. He then, after it may be a few weeks or months, becomes slowly depressed emotionally, apathetic, changed in his likes and dislikes from the excited condition, wanting in spontaneity; this usually lasting about the same period as the exaltation. Then the man passes into a condition of what may be called legal sanity. He becomes almost himself again, but after a few weeks or months he becomes excited and passes

through the three phases over and over again, very often indeed until he dies, the disease being in most cases incurable when fairly established. *Folie Circulaire* is seen in its most typical form in members of old families with a mental heredity, and often occurs in men of high intellectual power and distinction.

Extending the same idea, I have directed attention to the whole subject of alternation, periodicity, remission, and relapse as giving character to and affecting mental unsoundness as a whole. In my clinical lectures I pointed out that almost all the pathological were founded on the physiological periodicities of the higher nervous system.[1]

Lately German authors, especially Kraepelin, have developed this idea, and applied it specially to the ordinary conditions of morbid mental depression and exaltation which I have just described as Melancholia and Mania. He has thrown most of the cases of both states into one class, which he terms "Manic-Depressive" mental unsoundness. He affirms that almost all cases of depression have, or are subject to, times of exaltation. The state of brain in both states he puts down as the same in essentials. He has gradually worked up this class in his clinical studies so that he includes a very much larger number of cases in it than he did when he began to take this view. In fact, he now limits the cases of pure melancholics and pure mania to very few indeed.

It is no doubt a very important, and it is also a very practical view of mental unsoundness thus expounded by Kraepelin, but I think he pushes the idea to extremes, minimizing the differences and accentuating the likenesses of those two phases of mental unsoundness, which in themselves, and looking at two patients, the one in the one state, and the other in the other, are so distinct. My experience is all wrong if there are not more than one-half the total number of cases where there are

[1] *Clinical Lectures on Mental Diseases*, chap. v.

no alternations whatever of depression and elevation from the beginning to the end of their course. This conclusion is founded on the statistics of several thousand cases. Kraepelin's work has, however, directed our attention more strongly than before to the essential relationship between the conditions of morbid depression and elevation, and their close clinical connection with each other. It is in their practical treatment and management that their real mental distinctiveness and the importance of distinguishing the two states come in. The precautions against accident require to be different in each. The management of the one commonly differs from that of the other. The moral and mental treatment of each also differs. The medical treatment is mostly different too. Even if Kraepelin's scientific conception is a true one, they require to be differently regarded by the physician who has charge of them.

Treatment.—The treatment of those conditions of brain which manifest themselves periodically should be founded on the principle of preventing the brain from getting into a vicious circle or habit. We cannot interfere with the physiological periodicities, but we try to prevent them from becoming pathological. In the first place, we should try to secure complete recovery in the early stages of the cases that threaten to become alternating. The brain should have long rest and change. The sleep periodicity and habit should be completely re-established. No exciting work or amusements should be indulged in too soon; the diet should be for the most part non-stimulating and farinaceous; no alcohol or other brain stimulants should be taken; life should be routine and out of doors. Many patients should be got away to live in the country, or to go for a long sea voyage. The bromides and sulphonal are drugs whose effects in many cases are anti-periodic. I have undoubtedly seen many cases where the disease threatened to become *Folie Circulaire* cured by such drugs, and I have seen a few

cases where such a condition was thoroughly established, completely stopped by such treatment. Unfortunately, however, the prospects in the typical cases of *Folie Circulaire* are not favourable. It is too often the result of a very strong and evil heredity. The treatment of that condition which Kraepelin describes as the "Manic-Depressive" form of mental unsoundness is that which I have described under depression and exaltation, with special attention to the indications for a complete cure before the brain is made to resume its usual work and worries.

As recovery from attacks of mental unsoundness is taking place it often begins by improvement in the morning, this being an example of diurnal periodicity. A monthly periodicity is still more common, this, no doubt, being the origin of the absurd theory that the phases of the moon influenced mental disorder, and accounts for the word "Lunacy," so commonly used that it gave the name to our "Lunacy Acts," &c. Seasonal periodicities are also seen, some patients being worse in spring or summer or winter, and in certain cases the attacks always begin or recur at certain seasons of the year.

patients take long to answer questions or to do what they are told, if they do so at all, but in which the patient usually retains the power of standing, walking and swallowing. A typical case of stupor stands for hours where he is placed in the same attitude, when spoken to he takes no notice, and he shows no active

desires, passions, or affections. The expression of his face is vacuous, the circulation is much below normal in most cases, so that the extremities look blue and are cold. He often does not obey the calls of nature, and loud sounds make no impression on him. The power of the brain to receive impressions from without and to show any reaction towards such impressions is in abeyance, the patient's muscular system is found in three different conditions in different cases. 1. The muscles are passive and unresistive. 2. They are cataleptic or "waxy," with decided tendencies to keep fixed attitudes and positions. 3. They are resistive, showing more or less of a strong passive resistance to external efforts to change the position of the body or the limbs.

When the mental condition of the cases of confusion and stupor is carefully studied, in the attack and afterwards, we find that in about one-half of them there is no consciousness, and the patients do not remember what took place during the attack. Those are called "anergic" cases by Hayes Newinton. Some authors improperly call this condition "acute dementia" or "primary dementia," and popularly it is often called "trance." It is a curable disease, and occurs most frequently among persons under thirty years of age, with a neuropathic constitution and a bad mental heredity. In the other variety the patients are conscious, and remember afterwards the events that occurred during the disease more or less distinctly. In most of the latter class of cases there is a distinct melancholic expression in the face and eyes, and, as a matter of fact, this variety may be put down as an aggravated form of melancholia, the "Melancholia Attonita" of the older authors. The patient very often is found afterwards to have laboured during the attack under some terrible delusion, such as that he imagined himself dead, or that he was too wicked to hold intercourse with his fellow-men, or that if he speaks or moves he will be killed, &c. Such delusions

and the confused and depressed state of mind the patient is in may be said to paralyze his speech and his voluntary activity. Some of these cases of melancholic stupor may suddenly change and become impulsive and dangerous to others, or to their own lives, without warning. Insane impulse is often a part of the confusional and stuperose conditions. The melancholic, like the anergic form, is a curable form of mental disease.

Without going the length of such complete stupor, many forms of mental unsoundness have a strongly confusional and lethargic element. The patients feel confused, their whole mental state fails in proper realization of their surroundings. Orientation, or the sense of place and time, is diminished, and they take a long time to understand what is said to them, or to think out even the simplest proposition.

Drs. John Macpherson,[1] Craig,[2] and Stoddart[3] have instructive chapters on confusional mental conditions, most of which they attribute to toxins. Confusion of ideas, hallucinations of hearing, stupidity, aimlessness, mental automatisms, impulsiveness without outward cause, are the chief mental symptoms such patients suffer from. The bodily symptoms comprise great weakness, loss of nervous tone, dilatation of the pupils, coated tongue, disordered digestion, sometimes an increased temperature, local anæsthesia, loss of common sensibility, ulcerations in the skin and perspirations, sleeplessness, and a marked tendency towards emaciation.

I look on confusional conditions and stupor as being essentially of the same character and due to the same causes. The one state is in fact merely an aggravated condition of the other. Conditions of confusion may occur in mania and melancholia, general paralysis, epileptic and senile unsoundness of mind. Following

[1] *Mental Affections*, by John Macpherson, M.D., F.R.C.P.E.
[2] *Psychological Medicine*, by Maurice Craig, M.D.
[3] *Mind and its Disorders*, by W. H. B. Stoddart, M.D.

Kraepelin, Dr. Craig places them under the "exhaustion psychoses." I think the word "exhaustion" used in connection with the cases is misleading. I would say that the majority of them may be more properly described as toxic than due to exhaustion. No doubt excessive fatigue, great exhaustion, unusual anxiety or worry, mental shocks, and even over-fatigue may be the predisposing causes of the condition, especially in the young, but to produce the state I have described something more than exhaustion or fatigue is needed. There are a few cases in which the direct cause of this condition is some terrible mental stress, such as seeing a child killed, or the sudden loss of fortune, &c. The two symptoms so common in aggravated cases, namely, hallucinations and a tendency to a rise of temperature, are both indications of brain poisoning.

We may also have, as predisposing causes of such attacks, simply a bad heredity or exhausting vices and malpractices, or a previous falling off in bodily nutrition. The patients are commonly under thirty years of age and often have stigmata of degeneration in face or head.

Taking all the cases, they are found to range from the merest confusion of mind, consciously felt, that looks just like inattention and absent-mindedness, through complete confusion of mind into stupor of the "first" and "second" degrees. A case of complete stupor in the first degree may be said to be in a state of suspension of mind.

Treatment.—All cases of stupor need much the same treatment, which may be described as eliminative, antiseptic, supporting and stimulating. Nerve tonics and the vaso-motor tonics, such as quinine, iron, strychnine, ergot, digitalis, rest, warmth, friction, and electricity in suitable forms, with the mental stimulus of society and occupation as they are recovering, are also indicated, and sometimes their effect is indubitably and immediately good.

2. *Losses of Control, Morbid Impulses.*—The control of the lower functions and organs by the higher, the regulation of the body as a whole and all its parts by the brain, and the effects on body by mind are among the most important facts physiologically and psychologically of the higher animal life. The scientific study of control in man goes upwards by gradually ascending grades, from the power that is exercised by every cell in the body in selecting the particular materials it requires for its sustenance from the blood, through the control of all the voluntary muscles by the nervous centres, and the regulation of the action of the great organs of life, like the heart and lungs, by their own special nervous ganglia, up to the control of feelings and conduct by the mind working through its vehicle, the brain cell. A reasonable amount of control is so essential a quality in life that we may say that self-control is the essence of soundness of mind, while the lack of it is the most distinctive feature of mental unsoundness. We now use the word "inhibition" as being equivalent to control. Mental inhibition is the equivalent of practical morality in the life of man. All law implies control, and of law Hooker says, "Of law there can be no less acknowledged than that her seat is in the bosom of God, her voice the harmony of the world; all things in Heaven and earth do her homage, the very least as feeling her care, and the greatest as not exempt from her power." Lawlessness among sane men would mean the speedy ruin of civilized society and a reversion to barbarism with the not distant annihilation of the species. Almost all unsoundness of mind is more or less accompanied by lawlessness and lack of normal control, but there is a form of unsoundness which is especially characterized by lack of inhibition, without much impairment of the reasoning or of the emotional faculties. In such cases there are seen all kinds of impulses to do acts apart from normal volition. Those acts are

"motiveless" in the ordinary sense of the word. They may be harmless, or they may be destructive to life. They may be the exaggeration of instincts or appetites, or they may be contrary to all the normal instincts and habits. They may be automatic and not accompanied by any consciousness at the time or any remembrance of them afterwards, or they may be vividly realized and recollected. Those persons who act in this way may know it is wrong and may try to resist, but the morbid impulse may prevail over their normal will-power. They may be so weak as to be easily arrested by an effort of will, or by outside influence, or they may be so intense as to call into action every particle of inhibition that an individual can exercise, or entirely uncontrollable. They may be gradual in their oncoming and even in a sense schemed by the sufferer, or they may be instantaneous and explosive like an electric spark. They may result from a lessening in the inhibitory centres in the brain, or from an excess of energy in other parts of the organ which normal inhibition cannot control. The coachman may be so weak that he cannot control even well-broken horses, or the horses may be so hard-mounted that no driver could pull them up.

Degrees of Control.—Control, bodily and mental, is always a question of degree. This aspect of control is best illustrated in the growing child and the developing boy or girl. For the first year of its life the baby does not possess the higher sort of control at all. If it has a fairly good heredity, if it sees a good example, and has the power of imitation, if it is well taught, and, above all, if it is in thoroughly good health, the faculty of control slowly develops as the mind and the body develop. Responsibility, which implies the existence of control, is not looked for by any sensible parent for the first few years, and legal responsibility is not assumed to exist before the age of fourteen. The momentous period between fourteen and twenty-five is that in which the

higher forms of control and the building up of the moral feelings and conscience come to perfection. There are persons whose brains undergo normal development in all directions but that of control. They are able to reason, they feel, and their memory is good, but inhibition they have not. This usually means a bad nervous heredity or bad health. The children of barbarians, or of gypsies, of habitual criminal stocks, and of many of the unsound of mind are apt to lack mental inhibition, or to have it developed at periods of life later than is normal.

Inhibitory Centres in the Brain.—The study of physiology in modern times has shown that there are portions of the brain and nervous ganglia which are specially devoted to the function of control—"inhibitory centres." There are, for instance, groups of such nerve cells which when put in action can slow or even arrest the heart's action. Though we are not able yet to localize definitely such inhibitory centres in the higher brain, yet there is proof that it is the development of such centres which gives the individual the power of inhibition, and that their arrest or their destruction causes lack of control, morbid impulses, irritability of mind, and lawless action. It should be the highest aim of all parents, of all educationalists, of all reformers, of all politicians, and of all religious teachers to develop those controlling centres in the human brain and mind during the period when such development is taking place, namely, from childhood to five-and-twenty. It is abundantly proved by the experience of mankind that the right kind of education, right example, punishments of the right sort, and the action of suitable motives have in most cases the power of increasing the inhibitory faculty. It may be taken to be equally proved from the studies and experience of the teacher and the penologist—when scientifically informed—as well as those of the psychiatrist, that the lack of control may exist as a defect and a disease which no education or treatment can cure. Lombroso, the great Italian

psychiatrist and criminologist, whose recent death the scientific world deplores, and the late Professor Benedikt, of Vienna, were the first to bring out the connection between the form and qualities of the human brain and its innate power of control over tendencies to vice or crime. Like most enthusiasts, they probably pushed their views in advance of the facts, but there is little doubt they were right in the general principles they enunciated.

Causes.—In regard to the causes of such states of defective control, most of them may be put down under the following eight headings: 1. A congenitally weak brain, in which a lack of control is one of general defect. "Moral imbeciles" of this type are frequently seen. 2. Hereditary defects without much intellectual weakness in children of the insane, of the highly nervous, and of criminals. 3. They are at times developed during the crises of life—puberty, adolescence, the climacteric period, senility, and pregnancy. 4. All conditions of great and long-continued exhaustion, over-fatigue and stress, mental and bodily, loss of blood and the nervous debility that sometimes follows various diseases. 5. Over-indulgence in brain poisons, such as alcohol, opium, cocaine, &c., especially if such over-indulgence has been long continued. As a physiological fact all those toxins act first on the power of control and the moral sense, which are the highest and latest evolved qualities of man. 6. Previous attacks of acute mental disease sometimes leave the brain in this damaged condition. 7. Total lack of any education of the inhibitory faculty in youth, especially if there has been at the same time bad example and immoral environments. 8. Attacks of acute mental unsoundness sometimes begin by impulsive acts.

Forms.—The forms which morbid impulse and lack of control may assume are most various. There may be a general impulsiveness of conduct, a muscular restlessness and fidgets, perverted animal, organic, and sexual im-

pulses. They may assume a homicidal or suicidal character, or both of those combined. They may take the form of a destructive impulse to break and destroy articles. The condition commonly called dipsomania, or uncontrollable desire for alcohol or various drugs, is one of the commonest, resulting often from the general use of alcohol by our population, so that young persons, and those with unstable brains, get under its dominance. Such poisons create a craving, and diminish the power of resistance against it. Sometimes such impulses are explosive in character, and are really a form of epilepsy—"mental epilepsy" it is called—during which the patients are unconscious or only partially conscious. The explosion of morbid energy in those cases takes place in the mental centres of the brain instead of, as in ordinary epilepsy, in the motor centres. There may be impulses towards stealing ("Kleptomania"), towards setting things on fire ("Pyromania"), towards wandering aimlessly about ("Planomania")—in fact, there are "phobias" of every conceivable kind. Then there is a condition, which undoubtedly is a real one, of "moral insanity." Persons labouring under this condition either do not know the difference between right and wrong action, or knowing it, they have not the power to exercise self-control, to avoid evil and follow what is right. I have known many cases where the intellectual power was sound, and even acute, where the affective faculties were strong, and where the memory was good, but where there was absolutely no sense of right and wrong or power of moral guidance of conduct whatsoever, no feeling of responsibility to God or man, and apparently no fear of punishment for their wrong or criminal acts, all this resulting from disease or defect of brain. There are some cases, as we have seen, where the lack of control takes the form of "temper," and where, naturally, their relations and friends attribute their wrong action to bad temper alone. This is often seen in the beginning of acute attacks of

unsoundness of mind, the temper becoming irritable as a preliminary to the more serious disease, the inhibition, in fact, giving way first in the general dissolution that is to come.

3. *Imperative Ideas and Obsessions.*—There is a strange condition suffered from by some people where they feel that they *must* do a foolish act, or they become dominated by an untrue and foolish idea—for instance, that they labour under some infectious disease, and they cannot by an effort of will or exercise of reason get rid of such "imperative ideas" or "obsessions." Dr. Johnson had to touch every lamp-post as he walked the streets of London, and was most unhappy if he did not do so. That was an example of a mild and harmless imperative idea. When such morbid mental impulses are resisted by the will it causes unhappiness. When yielded to a sense of relief and comfort is commonly experienced. The morbidly impulsive state and such imperative ideas are closely allied.

Treatment.—The general principles of treatment of all forms of morbid impulse and imperative ideas are: 1. Educative, in the early stages of life by the parents and teacher under the doctor's advice. 2. Hygienic and medical, by improving and strengthening the general health and brain working. Life in the fresh air, much exercise, work, tonics, will often do wonders. 3. The bringing in of motives to act normally, through religion, morality, duty, fear of consequences, and punishments on scientific principles. 4. The systematic effort to break bad brain and mental habits and to establish good habits. Where it takes the form of bad temper this can often be done. 5. Where it is epileptiform and explosive the bromides will often aid in diminishing the strength of the impulse and rendering it controllable.

4. *Delusional Unsoundness of Mind.*—While a large number of the unsound in mind, the majority, in fact, have defects and perversions of their reasoning

power, so that they entertain beliefs amounting to insane delusion, yet there is a special class where such delusion in a limited and fixed form is their chief symptom, without depression, or exaltation, or marked weakness of mind. This is commonly called "Delusional Insanity" or "Monomania" or "Paranoia." To analyze a false belief psychologically would imply a preliminary and difficult question as to what constitutes and produces belief in man. Such analysis is unnecessary here. We have to make the general assumption that all human beings who are fully developed and not diseased in mind have the power to reason and to come to conclusions from data on simple ordinary matters presented to their minds. Such a power of reasoning may be influenced by instinct, by education, by training, by prejudice, and by an innate lack of the capacity to reason rightly. The common beliefs of mankind are, to a large extent, not founded on any conscious reasoning process whatever, and a considerable number of them may be said to this extent to be of the nature of delusions, that they cannot be proved by facts, but this does not usually imply "delusion" in a scientific sense. In the scientific sense we may define insane delusion to be "a belief in something that would be incredible to people of the same class, age, education, or race, as the person who expresses it; those beliefs being persisted in, in spite of proof to the contrary, and resulting from a diseased or defective brain action." This definition excludes the superstitions of the ignorant or the barbarian, the false conclusions of the child, and the fancies of the unduly imaginative. As a matter of fact, the method of reasoning and coming to conclusions on strictly scientific and logical principles originated in the world with Bacon, and there are few persons who have this power in a supreme degree. The great historians, and even the philosophers of old, accepted as facts the most absurd

traditions, expressed the grossest superstitions, believed the most unproved tales, and arrived at conclusions often contrary to the most obvious facts. When we talk of this being the "age of science," we really mean that it is the age of sound modes of reasoning, of correct observation of facts, and of beliefs that have a sure foundation on proved fact. The general extension of this power would unquestionably revolutionize history and the conduct of human society. It would bring in the reign of law everywhere, would reform religion, strengthen morals, and abolish quackery of every kind.

Forms of Delusion.—Insane delusions may refer to every subject that concerns the mental working and the life of human beings. The idiot or the imbecile will believe any absurdity that he is told from his want of power to reason. In most persons of active unsoundness of mind who have delusions as a part of their derangement, those are not the main features, but are overshadowed by the morbid depression, the excitement, or the confusion that exist. But when a man who is quiet in his conduct and free from depression or excitement tells you that he is a thousand years old, and was well acquainted with the patriarch Noah, or another says that he is possessed of hundreds of millions of money, or another that he is really the King of Great Britain, or another that he hears voices or see things that do not exist, we say that those men labour under delusional unsoundness of mind. Many such delusions are consistent with sane conduct, law-abidingness, and capacity for business; but most of them lead to abnormal conduct, and some of them to dangerous and criminal acts, and are not consistent with the full liberty of those who entertain them, who are thus not able to harmonize their lives with their environment. Those false beliefs require to be persistent for long periods before we classify them as "fixed delusions." When so fixed they constitute a very incurable class of the unsound in mind.

Such delusional cases fall into two classes: those of grandeur, pride, or elevation, and those of persecution, suspicion, and unseen agency; but some delusional patients may combine both sets of beliefs—the so-called "Megalomaniacs." I knew a man who believed that he had thousands of pounds and that he was a great author, but that his relations and the Scottish banks had deprived him of his money and persecuted him, this culminating in their having placed him in a mental hospital. He was a man of great general intelligence, who wrote well and made certain original inventions after he became insane, through which he earned some money. When the false beliefs consist of perversions of sight, hearing, or any other of the special senses, they are, as I have said, called hallucinations. A man who is hearing unreal voices persistently is usually in an incurable condition of brain and is very often a dangerous man. In a large mental hospital there are always a considerable number of those purely delusional cases. I was once able to present to my students in the Edinburgh University a series of most remarkable personages, including Jesus Christ, the prophet Elias, the Emperor of the Universe, the Universal Empress, the Empress of Turkey, the Only Daughter of God Almighty, Queen Elizabeth, four Kings of England, one of Scotland, the Duke of Kilmarnock, the Inventor of Perpetual Motion, the Discoverer of a "New Elixir of Life," which had the power of curing the delusions of his fellow patients; a lady who daily and nightly had delightful conversations with the Prince of Wales and the rest of the Royal Family, a man who was persecuted by society on account of his virtues, one of the two "Witnesses" in the Book of Revelation, a man who was tortured every night by electricity, a man who saw visions, and a man who was annoyed by telephones every day of his life. Those were all incurable people whose conduct was so affected by those delusions that they were unfit to

remain in ordinary society and had to be segregated in a mental hospital. Most cases of delusional insanity, when analyzed, are found to be otherwise affected in mind, but in a less degree. Their social instincts are very often impaired so that they have no craving for the society of their fellow beings, their family affections are frequently either weakened or perverted so that they dislike those who are nearest and dearest to them.

Insane delusion has great medico-legal importance. Many lawyers believe that insane delusion is the only test of insanity. This is certainly not correct. Persons labouring under insane delusion who commit crime in consequence thereof are held irresponsible, because the element of brain disease is held to affect their responsibility to the law.

We now find that many brain poisons have the power of producing delusions and hallucinations, and we therefore think of this fact and adopt suitable treatment in every such case in its early stages. In Germany and commonly in America delusional insanity is called "Paranoia," while the old English and French name was "Monomania."

CHAPTER XIX

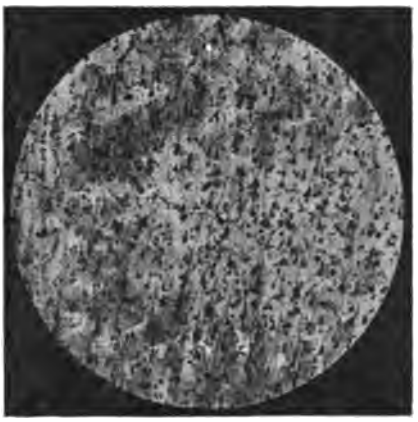
THE INCURABLE MENTAL WEAKNESS WHICH IS LIABLE TO FOLLOW THE ACUTE UNSOUNDNESSES OF MIND

Secondary Dementia

WHILE the great mass of the curable cases of mental unsoundness come under the depressed and the elevated types, or a combination of both, the great bulk of the incurable cases come under, first, various forms of congenital mental weakness; and, second, the acquired conditions of mental enfeeblement which follow conditions of depression and exaltation from which the patients have not recovered. The second class are assorted under the term "Secondary Dementia" or "Terminal Dementia." In the popular sense all insane persons and many of the foolish are often described as "demented." In the scientific sense Dementia stands for a definite kind of mental enfeeblement. By enfeeblement of mind we do not mean any sort of disturbance of the mental faculty and mental working, but a disturbance which consists in a marked general weakening of the mental power, a lack of full reasoning capacity, a diminution of feeling, a great loss of initiative and of will-power, and impairment of conduct, while the speech tends to be incoherent. In fact, the personality is so changed that the man wants force and individuality, and is of the "unfit" in the evolutionary sense to exist in the

world at all. Such a person needs the help of others. He would not be able to provide himself with food or to earn a living, if unhelped he would soon die. Persons thus demented form the greater part of the residuum of the unrecovered unsound in mind. Socially and legally they cannot exercise the rights of citizenship, or have the control of their affairs. This condition means damaged brain cells, and if it lasts long enough and becomes deep those cells become atrophied. The mind action being absolutely dependent on sound cell action, the mind weakens as the cells waste (see Fig. 11). An inspection of the brain cells in those two figures is most instructive, showing that in the person who suffers from dementia the mind machinery, the vehicles of thought, have wasted, and therefore the exercise of sound mind is impossible. No more vivid or convincing proof of the dependence of mind or brain cells could be given.

The following are the outlines of a typical case of such dementia: A girl of twenty-two, well developed in body, bright, attractive, and intelligent, well educated, perhaps over-educated, with nothing abnormal in her organs except one or two "stigmata of degeneration" only detected by the expert, took, without any apparent cause, an attack of acute mania such as I have described. The predisposing cause was undoubtedly a bad mental heredity, her father and several of her relations having been of unsound mind. The mental exaltation and excitement lasted for about a year. It then began to abate and hopes were naturally entertained of her recovery, but the expression of the face and eye, that "mirror of the mind," did not revive and was not responsive to emotion. A certain lowering of tone, a lessening of force, and a degradation of habits were noticed as the excitement passed off. The body got better nourished, but the movements were sluggish. She became, in fact, unattractive, which was in marked contrast to her normal condition. The nameless charms of



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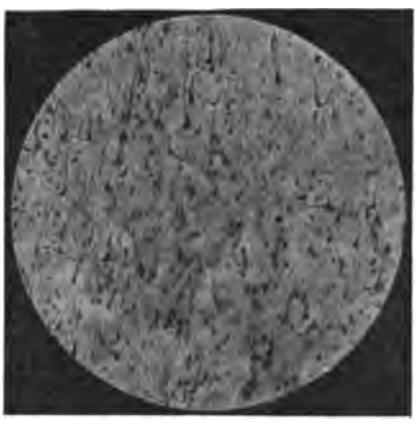

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FIG. 11.—TWO SECTIONS OF THE BRAIN, ONE FROM A HEALTHY MAN, AND ONE FROM A CASE OF CHRONIC AND INCURABLE ENFEEBLEMENT OF MIND (SECONDARY DEMENTIA).

a. Shows vast numbers of healthy cells, the vehicles of a sound working mind. *b*. Shows only a few cells, the rest having undergone a process of atrophy or decay, so that sound mental working was impossible owing to the absence of its vehicles.

manner, behaviour, and dress of a healthy and attractive young lady of education disappeared. She did not desire to read, work, play the piano, or to converse. When the excitement disappeared, except for periodic aggravations at certain times, she slept well and ate well, but her mental powers never returned, and she remained, during the rest of the thirty years she lived, a cipher in the world, morbidly contented in a passive way, silly in speech and conduct, but dead to the loves and hatreds, to the joys and sorrows, to the duties and responsibilities of life. She passed, in short, into the condition of secondary dementia. She was dead mentally.

Instead of this typical condition we have many varieties of partial dementia, slight weaknesses, marked eccentricities, diminutions of social instincts, incapacity to work, degradation of habits, loss of control in regard to drinking and other matters especially. There is a loss of the moral qualities, of self-respect, and of the sense of right and wrong.

There may arise conditions of what look like dementia at the end of many attacks of acute mania, but which are more of the nature of a temporary reactive condition, and consist of mental confusion, lethargy, inattention, and a lowered emotional and volitional state. From this condition recovery is possible. In fact, we do not commonly pronounce a patient to be demented and incurable till at least two years, and in some cases a longer time than that has elapsed from the passing away of the acute stage of depression, or exaltation, or confusion, yet the patient has recovered.

Comparing the patients who suffer from mental depression with those who suffer from elevated states, secondary dementia is far more apt to follow the maniacal conditions. This shows, as I have pointed out, that melancholia is a less serious and more curable disease than mania. It would seem that mania means that the brain cells have from the beginning a greater tendency to die in their higher mental functions. In

some cases dementia seems to be essentially more of a hereditary unfitness to go on energizing normally during the life of the individual—a positive tendency towards degeneration of the mental cells having existed from the beginning of the attack—the excited stage being, as it were, a mere prelude. This applies especially to many of the cases of "adolescent mania," 30 per cent. of whom pass into dementia. It is those who, gradually accumulating, form the mass of the inmates of the older mental hospitals. The typical case of dementia enjoys fair bodily health, and lives long. Consumption is the malady to which he is specially subject, and of which about 30 per cent. died in the older mental hospitals, where sanitary conditions were not so good as in the newer institutions. If the law of divorce is altered in this country the cases of secondary dementia are those to whom it should chiefly apply.

CHAPTER XX

CHIEF FORMS AND SYMPTOMS OF THE MENTAL UNSOUNDNESS OF CHILDHOOD, PUBERTY, AND PARTICULARLY OF ADOLESCENCE — "ADOLESCENT INSANITY"

THE LESSER MENTAL AND MORAL CHANGES IN ADOLESCENCE

CHILDHOOD

IT may be said generally that in regard to its liability to real unsoundness of mind, apart from congenital mental defect, the child's brain before puberty need not cause any special anxiety. The general bodily condition, the whole nutrition of the system, and the bodily development must be thought of first, and the mind will commonly take care of itself. Sleep is the divine restorer, the sovereign calmer of nerve excitement and fatigue in children. They cannot sleep too much. In our large cities, especially among the poorer classes, the all-pervading excitement of life is often so great that the brains of children get into a sleepless condition, and from this they may suffer severely at the time and in after-life. Of the two processes which go on in the brain—the laying up of energy and its expenditure—in children the laying-up process is by far the most important, because the brain's growth has to be provided for in addition to its vigorous activity. Especially where we have a nervous temperament in children sleep should be long and uninterrupted. The nervous child is one

where the brain and nerve functions stand out too prominently, where sensitiveness is too great, where all kinds of reaction are exaggerated, where emotion is too easily expressed. Such children are often disobedient, wayward, and subject to groundless fears, they are too sharp, flighty, thin, and often capricious about food. For such children punctuality as to time, regularity and order in life is one of the sovereign preventives of mental and nervous unsoundness.

While childhood is the period of life which is least subject to ordinary unsoundness of mind, yet, on the other hand, it is that period of life which is most subject to arrestment of mind, resulting from a non-development of the brain. The importance of the study of mental unsoundness in relation to childhood consists in this, that if we knew the constitution of each child, and especially its nervous constitution, we might so arrange its future life, its education, work, and life environments that any latent tendencies to mental and nervous disease might be counteracted. This would be the triumph of preventive mental medicine ; but unfortunately our knowledge as yet is not such as to enable us confidently to prescribe for the life of the nervous child in all cases. Most nervous diseases have a common basis in an unstable brain. The diseases to which children are subject are not those to which grown-up people are most prone.

I have already referred to the all-important subject of heredity in child-study. It is most important in investigating the causes of mental unsoundness of any kind in children to find out what ordinary nervous affections they have been subject to. Have they had convulsions when teething ? Have they been subject to night terrors, eye defects, or a special liability to pass into a high temperature from common colds and ordinary children's diseases ? It is here, too, that the skilled observer who knows the meaning of the shape of the head, the expres-

sion of the face, the symmetry of the features, the size and setting of the ears, and the easy or uneasy and graceful action of the muscles comes in. We now talk of marked abnormalities in all those respects as "stigmata of degeneration." They are, in short, Nature's bad marks. Each of them is a departure from that reasonable approach to a physiological ideal which we would like to see invariable in children. But Nature is, within limits, very variable indeed; she is not consistent, she is not always harmonious, and the outward is not in every case the sure indication of the inward. We may have a powerful mind combined with many stigmata of degeneration, while we may have, in a few instances, a weak mind with an apparently ideal head and face.

If any child is unduly excitable, is a bad sleeper, is markedly irritable in temper, is affected by the ordinary stimuli to its mind and body in abnormal ways, if it differs in the order of development of its faculties from what is normal, if especially it shows tendencies towards morbid impulse, asocial qualities, and a deficiency of self-control, or if a combination of those weaknesses exist, then I think special measures should be taken in the upbringing and feeding of such a child. One of the troubles we meet with is this—such children are often exceedingly like their parents, and therefore would be better away from them during a part of their upbringing. This is an insurmountable difficulty with the poor, and a great difficulty even with the rich. If the scientific doctor could take certain children away from nervous city parents, and put them under the care of healthy farmers' wives in the country, where they would live in the fresh air, get plenty of oatmeal and milk, not too much animal food, and where life would be on the whole non-exciting, I have no doubt much nervousness and mental unsoundness in the world could be avoided; but such counsels of perfection are more easily laid down than carried out. It might be said as truly, what an advantage there would

be in transferring our rickety and tuberculous children from their homes in large towns, and placing them in the country. The experiences of the Glasgow Parish Council in transferring many of these children of the poorest and most neglected classes in that city to the guardianship of cottars in the Highlands is most encouraging to the hygienist. Mr. Motion, the wise and enthusiastic Inspector of Poor of that city, has been good enough to send me photographs of many of these slum children before they were sent to the country and of the young men and women they developed into, and the contrast is that between weakness and strength, between stupidity and intelligence, between uselessness and efficiency, between threatening imbecility and the *mens sana in corpore sano.*

Unsoundness of mind, apart from congenital defect and delirium, is rarely seen in children under ten years of age. There are, however, cases recorded of most forms of unsoundness of mind as having occurred in childhood, but they are so recorded on account of their extreme rarity. Taking my experience, I have only met with maniacal exaltation, which had always a tincture of delirium in it, or confusion, or depression of mind in a few cases. The attacks are short in duration, but they tend to recur a few times before they finally disappear. Child melancholy is a very striking mental derangement when it occurs, it being so contrary to the normal affective condition of that period of life. I have seen a boy of six having three or four recurrent attacks of intense melancholia. He wept, and wailed, and wrung his hands in a very pitiful way. He had groundless fears, suspicions, and obstinacy, and was sleepless. He seemed to recover perfectly, but afterwards had a typical attack of adolescent mania from which he never recovered. In his case, as in all the patients who suffer from unsoundness of mind in childhood, there was a very strong mental heredity of the most

direct kind, his mother and many of her relations having been unsound in mind. The few cases of children suffering from temporary attacks of confusion and mild stupor have been very short in duration in my experience.

Brain Development and Unsoundness.—What may be called the real developmental unsoundness of mind is met with at puberty, but very much more frequently during adolescence. Up to eight or ten the brain has been chiefly growing in bulk. From puberty till full development at five-and-twenty its higher mental qualities are gradually evolving. The organic brain basis for true moral life, for taking a high part in social life, and for the altruism of family life is rapidly going on. Individualities of character are springing up, life and conduct are assuming their final form, the great process of education is doing its best, and sometimes its worst, to make or mar the success and happiness of life. Above all, heredity is then bringing out, as it never did before, characteristics of ancestry in regard to the higher departments of the mind. If that heredity has been good there will be strength and stability; if it has been bad there will be risk of instability and weakness of all kinds. The causes of many varieties of unsoundness of mind are apt to assert themselves during this momentous period. It is the great test period as to whether the brain is to be normal or not for the rest of life. By far the greater part of the incurable unsoundnesses of mind that maim life permanently and leave it a wreck are developed during this period. Nature seems to put the question in a very crude form at this period to every individual: "Are you fit to live and to reproduce and to be a useful member of the world's society or are you not? ' If not, she is apt, amongst other alternatives, to pronounce a doom of mental death with continued life of the body, which is the worst sentence she is capable of. It is, in fact, a far more terrible doom than when Nature in the

lower forms of life destroys the individual. The causes of unsoundness of mind during this period are of such a character that in some individual cases they may be obviated, and in some this is not possible. They have in the latter to be accepted as a fate that is inevitable, a doom that is certain.

Adolescence—its Normal Psychology.—Before considering the disturbances of mind which occur during the second part of life—that is, from puberty until full development—it is essential for its proper understanding to take account of the normal development of the human mind during that period. The modern idea of disease and of pathological changes in the human body connects them in most cases with the processes of health and normal structure. The one arises out of the other and the same laws commonly prevail in both. Especially is this the case when we have to do with brain and mind. Being the last and the greatest products of evolution, their disorders and unsoundness have always a definite relation to their health. Mind, being in one sense a form of energy, must be subject in some ways to the natural laws which regulate all other forms of energy. The symptoms of a diseased mental process are not absolutely new facts in nature. What is the result of a disease or a fault of working or a loss of force in an adult may be precisely like the natural condition of a child. The mental processes are non-existent in the child at birth. They gradually develop, one by one, until he reaches maturity, and in old age they fade away and disappear, one by one, until they may be said to be again non-existent, as I lately saw was the case in a woman of one hundred and two years of age. There are temporary conditions also to which all men and women are liable, which are of the nature of disease or unsoundness and yet are normal to the circumstances in which they are placed at the time. The study of mental development at this period of life is second in interest and importance to no other study

which the scientific man can undertake. Its range is vast, for it implies a knowledge of physiology, psychology, education, ethics, sociology, evolution, and psychiatry. It also implies a general knowledge of human nature and human conduct. It must be treated in a philosophical and scientific way. It is the study of "man in the making," and the "child-study" of the modern educationalist is only the first part of it.

Before puberty the whole of the human energies have mostly tended towards the acquisition of the organic qualities of life. There has been little new production of the highest mental qualities. Before that time there has been a general mental likeness between the two sexes, which then gradually disappears. The more marked individualisms have not then sprung up. Up to that period the powers of self-control, abstract reasoning, originality, and ideals have not appeared to any great extent. The higher morality, the constructive imagination, and the spiritual life have not been possible. Meredith puts the religious phase vividly: "At the period when the young savage grows into higher influence the faculty of worship is foremost in him. At this period Jesuits will stamp the future of their changeling flocks: and all who bring up youth by a system and watch it know that it is the malleable moment." The sentimental phase he thus eloquently describes: "Richard gave up his companions, servile or antagonistic; he relinquished the material world to young Ralph and retired into himself, where he was going to be lord of kingdoms: where Beauty was his handmaid, and History his minister, and Time his ancient harper, and sweet Romance his bride, where he walked in a realm vaster and more gorgeous than the great Orient peopled with the heroes that have been." Those qualities of the perfected man do not appear at once. They certainly take ten years—from fifteen to twenty-five—to come to perfection. They could not appear at all except

their brain vehicle was slowly developing and becoming gradually susceptible to the higher forms of mental stimuli. If the brain cells and its general structure do not develop the mind ceases to grow and the individual remains a congenitally weak-minded person, unfit to take up the higher duties of life. That altruism on which citizenship depends does not really appear until after that time. Society in any organized form would cease to exist if men and women remained in the normal condition of the boy and girl. The full effects of heredity, bad or good, do not appear until then. It is quite clear, therefore, that this is the period when parents and teachers, physicians and scientists, statesmen and priests have to do their best to modify evil hereditary influences, to stimulate good ones, and to provide the environments suited to bring about good character, good habits, good morals, strong wills, and a powerful resistive power against temptations. Men and women must then be so built up that the law of the "survival of the fittest" shall operate in regard to each of them. The greatest problem in life is being solved during adolescence.

"*Adolescent Insanity.*"—The mental unsoundness of adolescence is one of the most interesting forms, and also one of the most common and distinctive with which we have to do. In by far the greater number of cases it takes the form of exaltation, but there are a few where the depressive conditions prevail. The exaltation, when typical, consists of a restless, talkative, and morbidly aggressive condition, which sometimes passes into acute mania. The manner is pugnacious and resistive to authority in the man, and ostentatious, without reticence, and immodest in the young woman. Impracticable and absurd schemes are hatched in the mind in both sexes, and are expressed with an aggravating dogmatism. The advice and authority of parents and guardians is set aside with contemptuous scorn. There is constant change in the schemes and resolutions; there are preposterous

ideas about marriage and about money. The idealisms of youth then run mad and often take ludicrous forms.

This exalted phase lasts for a few weeks or months and then abates, to the intense joy and hope of the relations of the patients; but there soon comes one of the most characteristic of all the phases of this form of unsoundness. After a period of what seems recovery, with perhaps a touch of confusion, lethargy, and depression in it, there is, in most cases, a recurrence of the old symptoms, and the patient passes through the same phases of excitement again. Those recurrences continue for perhaps a year or so more, until there is a fear of the establishment of *Folie Circulaire*. In the favourable cases which are going to recover—and they amount to about 60 per cent of them all—the body becomes more manly or womanly, the beard grows on the young men, there is a great gain in weight, and the patient finally recovers and has all the characteristics of a fully-developed man or woman in mind and body. The attack has marked, in fact, the termination of the period of completed organic development, that most critical period in the life of every human being.

The few cases of adolescent unsoundness which suffer from depression instead of exaltation are not commonly so severe or serious; the symptoms are those of mild melancholia with a certain amount of lethargy; but in some of them there are marked suicidal feelings. In the depressed cases the periodicity is not so marked as in the exalted cases, and they undoubtedly have a better chance of speedy and complete recovery.

The mental illness in certain adolescent cases assumes confusional and stuperose forms, as described in Chapter XVIII. The most typical and frequent of the cases of "Stupor" under the old classification by mental symptoms are also cases of "Adolescent mental Unsoundness" under my classification, and of "Katatonic Dementia Praecox" under Kraepelin's.

Treatment.—The termination of adolescent unsoundness which we most dread, and which occurs in about 30 per cent. of the cases, is that of the patients sinking into that condition of secondary dementia which I have described in the last chapter. The treatment of adolescent unsoundness of mind, whether it takes the exalted or the depressed form, should be on the same principles. The patients should live in the fresh air, they should walk, play out-of-door games, and have their attention occupied and their energies expended in rational work and amusements. The sleep habit should be re-established by those means and by helps from hypnotic drugs in some cases. The diet should consist of milk in large quantity, eggs, bread and butter, porridge, broth, vegetables, fruits, and as little of the highly fed animal foods as possible. As the excitement passes off the patients should have tonics and sometimes cod-liver oil. When one sees such patients gaining in weight and becoming more manly and womanly in form the outlook is good. The habits of the patients should be most carefully attended to, and measures should be taken to prevent, as much as possible, erotic trains of thought, stimulating novel reading, or too much social excitement.

One may assume, with almost certainty, that in every case of adolescent unsoundness of mind there is a strong nervous or mental heredity.

Dementia Praecox.—This is a form of mental unsoundness elaborated by Kraepelin, who is constantly altering its definition, and who does not yet profess that it is a final or pathological generalization. It is a complex variety, difficult to define and describe. It covers most of the ground of my "Adolescent Insanity," but does not include some of the cases of that disease whom Kraepelin would call "Manic-depressive," and includes others, but only a few, who have passed well over the adolescent period of life. It implies what Tanzi calls a "stolidity of conduct," the patient showing his disorder more by what he does

than by what he says and thinks. The will-power is perverted or lost, he is markedly automatic in conduct, he exhibits what on the Continent is called "negativism" —that is, he stands motionless, passive, heedless of danger, with little sign of will-power being exercised, apathetic, indifferent, careless of personal appearance, and is in complete passive opposition to any order or suggestion made to him. The patient often has hallucinations, and he is completely changed in character. Kraepelin divides the cases into three forms: the "Katatonic," or stupid and silent, the muscular movements not under the control of the will, with no real emotion, and no respect to ordinary rules of conduct. The second variety is the "Hebephrenic," or the idle, irritable, with the power of attention almost lost, the emotional state being one of either depression or excitement, with marked hallucinations, sexual malpractices, and foolish conduct generally. The third variety is the "Paranoid," or delusional variety, the delusions being chiefly those of persecution, but sometimes those of grandeur, and they are often accompanied by morbid impulses. The three varieties may pass into each other; they all tend ultimately to a weakening of the mental power—towards dementia, in fact—in some degree.

Adolescent mental unsoundness and dementia praecox have this in common, that bad heredity is their predisposing cause, and the brain shows degeneration and atrophy of the cells if they last long. Tanzi says, "Dementia praecox is in all probability a disease, not a developmental anomaly." I say emphatically that it is both a disease and a primary developmental defect of a subtle character. Kraepelin says that some cases recover, but neither he nor any other author gives the percentage of actual restorations to mental health. I strongly oppose the use of the term "dementia" as applied to any curable form of mental unsoundness whatever. It ought to be reserved for the incurable conditions, otherwise

perplexity of ideas results. In the cases in whom confusion or stupor is a marked symptom of adolescent unsoundness various investigators have found evidences of actual disease in the brain cells. Dr. Wigglesworth[1] calls the changes in the cells "a primary inflammatory affection of nerve cells," and we should now attribute that to the effects of toxins of endogenous origin. Many of us would further infer that such toxins were secondary to the original and mental disorder, that, in fact, such disorder led to the formation of toxins or rendered the brain cells less resistive against the toxins already existing in the body.

Other Mental and Moral Changes of Adolescence.—The period of adolescence is not only liable to such sharp attacks of technical mental unsoundness as I have described, but unfortunately is also subject to certain forms of mental, moral, and conduct changes which are different in character but essentially of the same nature. They may consist in various cases of stupidity and lethargy which look to those about the patients like mere laziness. In other cases the social instincts are so impaired that we see either a complete absence of desire to mix with those of their own age, or causeless feelings of aversion to relations, especially to those in authority, such as parents. Or we may have a general incompatibility of temper, the patients losing situations, quarrelling with friends, and making enemies everywhere. Or there may occur such changes of purpose that no occupation is kept up for more than a few weeks or months. Or we may have visionary scheming, frothy religionism, immoralities, crime, and even murder. It is a striking fact, which I ascertained in looking over the Criminal Blue-books, that more than half the crime of the country occurs in persons under the age of twenty-five. There is one very sad moral change that takes place in some cases—that of the

[1] "Melancholia Attonita, or Acute Dementia," *Journal of Mental Science*, vol. xxxix., October, 1883.

development of a craving for alcoholic stimulants or narcotic drugs. As a matter of fact, by far the most of the cases of "dipsomania" arise during adolescence. If one desires to see a good example in a literary form of what I have been now describing, it will be found in "Lady Kitty" of Mrs. Humphry Ward's *Marriage of William Ashe.*

Other Developmental Nervous Diseases.—Adolescence is not only subject to such unsoundness and perversions as I have described, but from the period of puberty up to five-and-twenty the hereditarily nervous are subject to many other serious disorders and diseases of the brain and nervous system. We meet with St. Vitus' Dance, sleep-walking, asthma, sick-headaches, eye defects, hysteria, and, above all, epilepsy. It is the period, too, most liable to consumption and acute rheumatism.[1] If the moral perversions which I have described are the brothers of adolescent unsoundness, those merely nervous affections without necessary mental accompaniments may be described as their first cousins.

[1] *The Neuroses of Development*, by the Author.

CHAPTER XXI

CHIEF FORMS AND SYMPTOMS OF THE MENTAL UNSOUNDNESS OF MID-LIFE, THE CLIMACTERIC AND OLD AGE

MID-LIFE

MID-LIFE, from twenty-five to forty-five, should be the safest period of life in regard to unsoundness of mind; but, as a matter of fact, that is scarcely so—as life is lived in modern towns, at all events. It is during this period of life that its stresses and risks, bodily and mental, are most apt to occur. It is the period of business work and worries, of liability to accident, of failures in life, of marriage, pregnancy, child-birth, nursing, the care of little children, and of the disillusionments of youth. It is quite true that if adolescence has been safely passed certain dangers have been avoided; but modern life in all civilized countries, and especially in cities, is full of pitfalls. Human nature has not as yet learned to live according to Nature's laws; and if it had, circumstances are often too strong for it. It might be thought that it would be among the educated, the business people, and especially among the professional class, whose brains have been subjected to the higher education in youth, that the liability to unsoundness of mind would be most prevalent; but statistics do not bear out this. It is among the industrial classes, especially among the lower grades of

them, that unsoundness of mind is then most frequent. Probably there are two causes for this; first, the fact that they are in the lower grade of labouring people shows a certain want of brain force through which they have sunk in social status or have failed to climb up into higher positions. They are, in fact, the evolutionary leavings of nature to a certain extent. The second and by far the most determining cause is the sort of life so many of them lead —drink, dissipation, poverty, the uncertainty of employment, want of fresh air, want of reasonable enjoyments in life, all tending to upset brain stability and to overcome the natural resistiveness of the organ against inimical conditions. The unsoundnesses of the mid-period of life are as a general rule different in type from those of the adolescent period. Depression, fixed delusional conditions, alcoholic, puerperal, and lactational forms of insanity form a considerable portion of the total mass of unsoundness at that time.

There is no doubt that it is in mid-life where the regulative effects of good moral principles, of a reasonable philosophy, of religion, of good social atmosphere, singly or together, chiefly come in. Selfishness, however, is then frequently in the ascendant and is extremely apt to overreach itself and to produce bad effects on the man who practises it over much. It is remarkable how his common everyday habits and their regulation of his life will steady a man and prevent him from being mentally upset. Punctuality and order in life are of the first importance as minor virtues. Pessimism as a working principle of life is utterly bad from the point of view of mental stability. Human nature as a general rule absolutely needs for its continual mental health the support of a reasonable optimism. I do not wish to talk as though all men had it in their power to be optimistic or pessimistic just as they liked—that is not so. Those conditions of feeling to a large extent come by temperament, but most men also have some choice in that as in

other things in life. The cultivation of a thankful spirit and of a reasonable humility, the determination not to allow the pin-pricks of life to upset them, and the habit of a quiet self-questioning, would do much to prevent men and women getting on the slide which ultimately leads to the quick descent into unsoundness of mind. If one examines carefully into the actual modes of life of many sensible reasonable "middle-class" people, not to speak of our industrial classes, and deliberately compares their lives with the ideal, one sometimes is surprised that there is not more mental unsoundness in the world than exists. While we know that Nature exacts a penalty of some sort for every breach of her laws, yet it is certain that in many ways she is a light taskmistress. There is no doubt that "moderation in all things" applies to more than meat and drink. It is ever to be remembered that habits leave marks, and write themselves on the structures of the functions of the human brain, bad habits leave bad marks, and good habits leave good marks. The good marks leave the brain more fit to do its work, to resist its enemies, and to strengthen its defences—more fit, in fact, to survive in the struggle for existence. In really good health Nature leaves a margin for excesses, sins, and breaches of law—an enormous margin in most cases—if they are not grossly over the mark or repeated much too often.

The Climacteric—its Normal Psychology.—When we come to the period when men and women turn the corner of life, when they pass from mid-life into the first stage of decadence, and especially when they pass, at a still later period, from the first stage of decadence into its later stages, then, as might be expected, unsoundness of mind, the form of which is characteristic of the period, is frequently met with. The passions of life have lost their intensity, the ideals of life are less keen, the driving power of sex is less overmastering, and the result is that an unsoundness of mind, which consists of a mild

melancholy, a want of interest in life, a *tedium vitæ*, a diminution of will-power, and in some cases a melancholia, comes on. There is a distinct psychology of the climacteric, as the earlier period of decadence has been called. This state of mind, normal to the period, is accompanied by marked bodily changes. The form alters, especially in women; certain glands lessen in bulk, the red blood bodies diminish in number, the countenance and eye are less mobile and expressive, and as to the mind and emotions—poetry, fiction, and love-tales then cease to have the power to set the brain on fire; action ceases to be pleasurable for its own sake, the subtle interest of the society of the other sex is less electric and overmastering. Shakespeare well describes the early stage of the period when Antonio, the former vigorous merchant of Venice, says:—

> "In sooth, I know not why I am so sad:
> It wearies me; you say it wearies you;
> But how I caught it, found it, or came by it,
> What stuff 'tis made of, whereof it is born,
> I am to learn;
> And such a want-wit sadness makes of me,
> That I have much ado to know myself."

This diminution of the intensities of life no doubt frees the brain from certain liabilities to the acuter forms of unsoundness of mind, while it tends towards the less acute, the depressed, and the lethargic. The outlook on life becomes different at this time, many illusions are corrected; but it is not this aspect of the period so much as the bodily changes and the want of hope, of imagination, and of effort that then tends towards mental unsoundness. The period begins in the woman earlier than in the man, is more marked, and is more characteristic. Looking back to the lowest forms of life, we find that in them reproduction tends towards death. Many animals, low in the scale, die at once after they have reproduced their kind. The meaning of the unsoundness of mind at this period, from a biological point of view,

seems therefore clear enough. It is the first act in the dissolution of mental life, it is the departure of one great function, and a slow lowering of all the others.

The Unsoundness of the Climacteric.—When the mental changes accompanying the climacteric, which may be said to be more or less normal, pass into the technical unsoundnesses of the period, the symptoms are, in most cases, those of melancholia. They are more common in the female than in the male sex and occur earlier, generally between forty and fifty. The sleep becomes dreamy and broken, the appetite for food is less intense; the digestion and assimilation of food are impaired, and the skin gets muddy. Mentally, the apathy, fears, and fancies assume an intenser character, the patient is quite sure that some evil thing is going to happen to her, she is often terrified that she will lose control over herself, or commit suicide, she blames herself for all those feelings; there is a conscious loss of affection for those near and dear to her, and this is a cause of great distress. The capacity for work and the normal enjoyment in work disappear. Sometimes there are hallucinations of hearing. In a few cases such symptoms pass into those which I have described as constituting excited melancholia. In the male sex, in which the unsoundness occurs later than in the female—the age of sixty-three was that of the "Grand Climacteric" among the Romans—the virile characteristics of courage, mental aggressiveness, and ambition are lowered. The successes of previous life lose interest and often cause regrets. There is often a tincture of hypochondria in the mental symptoms in some cases, and in others a suicidal determination.

Treatment.—The treatment of this condition is that of melancholia. In women fresh air is often the sovereign remedy, and the patient is conscious that she feels better when out-of-doors. In all cases patience and time are needed for the recovery, which takes place in about 57 per cent. of the women and 31 per cent. of the men.

Psychology and Pathology of Old Age.—Passing on to the more advanced periods of life comprised under the term "old age," in addition to slackening of action on the part of the brain cells, we have in most cases a tendency to disease of the blood-vessels supplying the brain with blood. Instead of being elastic their walls tend to become harder, instead of being regular and straight in their outlines, they become tortuous. The conditions called "arterio-sclerosis" and "atheroma" begin to appear in their coats. Those changes have the effect of diminishing the supply of blood to the brain, of making that supply more irregular, and of not providing for special emergencies. In the younger periods of life, when there has been over-exhaustion, the blood-vessels in the head may fill up so unduly that the blood pressure is increased and mental confusion, headache, and often mental excitement result, but those conditions soon pass off and no great harm is done. Nature provides for a great deal of over-action in all tissues, more than is required for the strict physiological needs of the system. Those conditions of over-action come and go in youth with comparative impunity. This is not so in old age. When the vessels thus become congested they do not always right themselves again, and at times they burst and the blood flows into and around the brain itself, breaking up its substance, and causing apoplexy, paralysis, sometimes mental unsoundness, and death.

The impression must not be taken that all the changes in the brain and all its alterations of function are due to disease of the arteries—that is not so. The cells and the blood-vessels both suffer deterioration independently, and the one accentuates the degeneration of the other.

There is a characteristic physiology and psychology of old age. Physiologically senility means little initiative power, a gradually lessening emotional force, a loss of memory, a diminished output of muscular energy, lowered imagination, little adaptability to change, less

vigorous speech, impaired muscular co-ordination, changed expression of face and tone of voice, less red blood, a poorer nutrition of the body generally, and an especial slowing or blocking of the nerve currents in the brain. Senility also means a diminished output of will-power and business capacity, and slower mental action generally. Sometimes, too, there is irritability, morbid suspicion, gross selfishness, and want of consideration for others.

The condition of brain which goes with and is the cause of those mental conditions, is one which, in degree at least, also goes with certain other forms of unsoundness of mind. Old age being a natural process should, like all other natural processes, not be a cause of unsoundness of mind of itself, but the trouble is that all brains do not pass through natural processes in a normal manner. There is some weak point which is liable to fail long before the rest of the system. The disease of the arteries to which I have referred is especially apt to occur in gouty and rheumatic people, so that, in this way, gout and rheumatism may act as causes of senile unsoundness of mind. This form is not reckoned so hereditary as those of the early periods of life, but in many cases a bad inheritance comes in and accentuates other causes of breakdown. Old age itself is one of the most hereditary of all human characteristics. Centenarians usually come of long-lived families. There are plenty of men and women, energetic, active, well-living, who inevitably grow old early as their ancestors had done before them. A few cases are on record of old age occurring at thirty. Many savage tribes grow old soon, all imbeciles and idiots do so. Attaining a very old age depends not on the brain only, but also on the stomach, and the general nutrition of the body, and especially in the man's not possessing any marked weakness in any single organ of his body. I have never known or heard of any persons of a hundred suffering from any

acute form of mental unsoundness, though many of them do pass into a state of dotage, apathy, and mental death from brain waste alone.

The question is often discussed whether a man at eighty may not be as mentally vigorous as at forty. This is physiologically impossible if an exact and scientific analysis is made of such a man's mental power. There may be soundness of judgment, if time is given to form a conclusion. There may exist a wisdom and especially a caution which did not exist at forty, but caution is a negative, not a positive mental quality. I have never yet met with a man of eighty, whose judgment and self-observation was really reliable, that for a moment pretended he had not lost ground both in mind and body, nay, I have never seen a man at seventy of a candid mind who did not make the same admission. The newspaper paragraphs about men of advanced age having their "strength unabated" and their mental power absolutely clear up to the time of their death are common examples of *de mortuis nil nisi bonum.*

Senile Unsoundness.—The symptoms of mental unsoundness which are more or less characteristic of old age have a relationship to the normal changes of mind which go with that period of life. They are partly a question of degree. The man at seventy does not necessarily present the same picture as the man at ninety. The extent of the disease of the blood-vessels and the damage to the cells of the brain determine the extent and kind of the mental symptoms present. There is an organic craving for rest in normal old age, which is markedly changed when the mind of the old man becomes unsound, and he often exhibits extreme restlessness. In most cases of senile unsoundness it comes on gradually, the physiological changes gradually passing into the pathological, very often by a mere exaggeration. Inasmuch as mind is complicated, not simple, the symptoms of unsoundness at the senile period are diverse and

various, but most cases fall under three varieties. The first has as its chief characteristics depression and lethargy. The second consists chiefly of excitement, sometimes with a certain exaltation, but always with irritability, restlessness, unreason, suspicion, and change of affection. The third variety consists chiefly of the abolition of mind in all its forms, of senile dementia, and of complete dotage. In some cases those three varieties form three different stages in the same case. In others they do not change. The depressed senile case either recovers from his depression in a few months and resumes the normal mind of his age—this happens in about one-third of this type of case, a fact which is not usually known. Such cases are commonly seen between seventy and eighty years of age. They mean a transitory and recoverable brain failure. They are usually accompanied by no excessive disease in the blood-vessels or in the brain cells.

The second variety of senile unsoundness, that where excitement prevails, is by far the most painful and the most difficult to manage and treat. The brain storm is often very acute. In many cases it consists of outbursts of delirious excitement. They are examples of what I call "acute senility." They are characterized by almost constant talking, shouting, incoherence, loss of memory and of power of attention, sleeplessness, and of restlessness by night and day, especially by night. When the mental symptoms are not so acute there are commonly delusions of suspicion against relatives, servants, and friends. The man thinks his property is stolen, his affections are changed so that those near and dear to him are suspected of all sorts of ill-treatment. Control is resented and management is most difficult. There is a tendency of late to regard such symptoms as caused by an irritating poison, self-produced, which circulates in the blood and irritates the brain cells. Metchnikoff, a great scientist, has lately put forward the view

that if such poisons could be counteracted by proper diet and the use of the ferment found in buttermilk, used as an ordinary article of diet through life, men might live over a hundred years. To manage such patients, either at their homes or at mental hospitals, requires the very best nurses and the exercise of the highest human qualities of forbearance, patience, tact, and skill. The food requires to be such as does not require mastication. Milk and eggs, in my experience, form by far and away the best basis of diet for such patients. The rooms require to be kept warm. Something can be done to mitigate and soothe such symptoms by suitable drugs judiciously given, such as a combination of sulphonal and the bromides in small doses. When the brain storm passes off there is usually the condition of senile dementia left during the remainder of life. King Lear's condition, as described by Shakespeare, is a perfect example of this form of senile mentality—

> "'Tis our fast intent
> To shake all cares and business from our age;
> Conferring them on younger strengths, while we
> Unburdened crawl toward death."

Well would it be for many a man if this intent were carried out. Those near them see, both in character and temper in such cases—

> "The unruly waywardness that infirm and choleric years bring with them."

And Goneril says—

> "You see how full of changes his life is."

Those sudden changes and loss of affection were vividly expressed in regard to his favourite daughter—

> "I loved her most, and thought to set my rest
> On her kind nursery. Hence and avoid my sight
> So be my grave my peace, as here I give
> Her father's heart from her!"

The way in which old men must often be treated is put by Goneril in a vivid way when she says—

> "Old fools are babes again; and must be us'd
> With checks as flatteries."

His forgetfulness, suspicion, irritability, impatience of contradiction, and his impulsive violence are well exhibited when Lear says to Oswald, whom he had known very well—

"My lady's father! my lord's knave; you whore son dog! you slave! you cur!
OSWALD. I am none of these, my lord; I beseech you pardon.
LEAR. Do you bandy looks with me, you rascal? [And strikes him.]"

The extreme mental confusion that sometimes occurs in senility is well expressed—

"Does any here know me? This is not Lear; does Lear walk thus? speak thus? Where are his eyes? Either his notion weakens, or his discernings are lethargied—Sleeping or waking? Ha! sure 'tis not so—Who is it that can tell me who I am?"

The impulsive unreasoning action appears thus—

> "Darkness and devils!
> Saddle my horses; call my train together.
> Degenerate bastard! I'll not trouble thee:
> Yet have I left a daughter."

The sudden emotionalism is often seen—

> "I'll tell thee!—Life and death! I am ashamed
> That thou hast power to shake my manhood thus;
> That these hot tears, which break from me perforce
> Should make thee worth them."

Often the old man realizes that his mind is giving way, as when Lear pathetically says—

> "O, let me not be mad, not mad, sweet heaven!
> Keep me in temper: I would not be mad!"

"We are not ourselves,
When nature, being oppress'd, commands the mind
To suffer with the body."

"O fool, I shall go mad!"

His loss of memory appears everywhere throughout the play. Certainly when age and its infirmities go on to such mental dissolution as affected Lear, we may well say, like Kent in the death scene—

"Vex not his ghost: O, let him pass! he hates him
That would upon the rack of this tough world
Stretch him out longer."

The demented cases of senile unsoundness consist of simple mindlessness. It is the "last scene of all," and "second childishness," "sans teeth, sans eyes, sans taste, sans everything."

Treatment.—The satisfactory treatment of senile unsoundness of mind is very difficult in most cases. It implies trouble, anxiety, patience, and good nursing beyond most forms of the disease. The habits and ways that have to be gently and, if possible, lovingly counteracted, treated and put up with, are often most painful. A good female nurse is the first requisite, and she must not be too young or too old. She sometimes will need a man assistant. The rooms must be kept warm by day and night. The night management is apt to be especially anxious and troublesome. Noise, restlessness, wild violence, much resistiveness, have to be met as well as possible. Such patients have a provoking habit of taking their sleep during the day, and keeping awake and being noisy all night. The diet and feeding is of great importance. There is nothing like milk made warm and given often with eggs as liquid custards. Sometimes cod-liver oil and extract of malt are most useful as adjuncts to food.

The medical treatment aims at attending to all the bodily functions and using mild brain sedatives. I have found a mixture of sulphonal and the bromides

to be most useful in very many cases, in taking off the edge of troublesome excitement, and in making the unfortunate sufferers manageable at home, instead of being sent to mental hospitals. If the home is cramped and the means insufficient to procure good and sufficient nursing, then the sooner the case is sent to such a

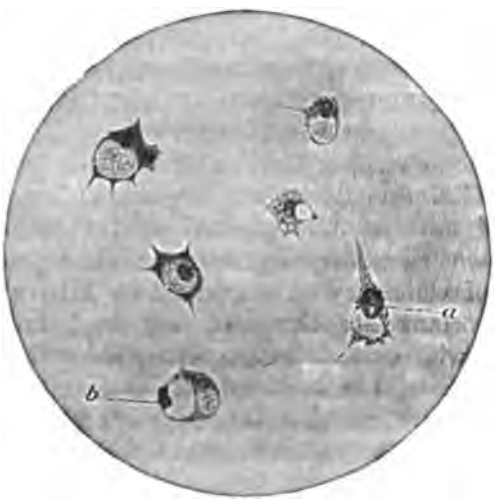


FIG. 12.—SIX EXAMPLES OF DETERIORATED CELLS FROM THE BRAIN OF AN OLD MAN OF 80 IN THE STATE OF EXCITED DOTAGE OR SENILE INSANITY.

They show various stages of deterioration, degeneration, and shrinkage corresponding to the deteriorated and damaged mind of their owner. Not one of them was fit to be the vehicle of sound mental operations. *a*. Is least degenerated. *b*. Is most so. The others are in intermediate stages of damage.

hospital the better. In its special wards ideal conditions for care and treatment will be found.

Pathology.—After death in the decided cases of the second and third varieties of senile unsoundness—the excited and the demented—the brain cells are found markedly damaged. Pictures of this state are shown in Fig. 12. In some cases the neuroglia and the capillary blood-vessels all suffer in an acute form and superficially resemble those of advanced general paralysis.

CHAPTER XXII

UNSOUNDNESS OF MIND CONNECTED WITH CHILD-BEARING

WOMEN are liable to various forms of unsoundness of mind connected with sex, ovarian disease, menstruation, pregnancy, child-bearing, and nursing, of which by far the most distinctive and the most important are those directly and immediately connected with child-bearing, which account for about 10 per cent. of the insanity in the female sex. All those forms are amongst the most curable varieties of mental disease, and when cured they are not apt to leave any traces of mental weakness or obliquity behind. The patients can then resume their place in the family and society, and can do their work, and be as if they had never been ill.

Child-birth.—I do not know any event that can occur in a family, short of death, that is so great a shock to all who have to do with it as for a new-made mother of a first-born child to become acutely unsound of mind. One of the most joyous times of life is made one of fearful anxiety. Few things are, on the contrary, more pleasant than to see the restoration of the mother back to all that makes her life worth living. This form of mental unsoundness is a common one, for it amounts to 5 per cent. of the mental disease occurring in the female sex, and it is a low estimate that one in every four hundred child-births is followed by it in greater

or less degree. It has certain very marked peculiarities. In four-fifths of all the cases it begins within the first fortnight after delivery. Its cause is therefore definite and clear. The accompaniments and the risks of child-birth produce it. Commonly it is a form of acute poisoning, but it is aided and in many cases caused by the great physiological cataclysm itself, the pains of labour, the mental stress, the maternal emotion, the exhaustion, the loss of blood, the sudden diversion of the stream of vital energy from the womb to the breasts, the reflex disturbances and irritations in the brain from the reproductive organs—those, together or separately, weaken nature's defences and help to set up one of the most violent mental storms that the physician has to treat. In addition to coming on suddenly it is frequently attended by a higher temperature than any other of the acute insanities. The patient changes in mind, and her natural affections are so reversed that she neglects her child, sometimes forgets its existence, and, in a few cases, is dangerous to its life. It combines bodily weakness with acute mental elevation and excitement in a high degree. The patient does not sleep, talks incoherently all the time, is often violent, sometimes tries to commit suicide in an impulsive way, but with all this her pulse is very weak, her face looks haggard, there is often tenderness over the womb on pressure and other evidences of septic irritation. Mostly she will not look at food and often requires urgently to be fed artificially. Anti-toxic and antiseptic treatment should be considered, and is often needed. She needs constant nursing, medical care, and attention. With good fortune, in some of the acutest cases, a turn for the better will occur in a week, the temperature will gradually fall, and the patient become calm, take her food, and in the course of three months will be well—a joyous mother, in her right mind, clasping her child, the whole of the disturbed mental period seeming like a dream to

her, that is very soon forgotten in her new duties and delights. Recovery takes place in about 80 per cent. of the cases under anything like reasonably good conditions and treatment. It is perhaps, with all its difficulties and risks, the most satisfactory form of mental disease that a doctor or nurse has to do with. There is unfortunately some risk of a fatal termination, for about 8 per cent. die. Those are most frequently the acutely septic cases whose temperature has risen well above 100°.

Nursing.—The mental unsoundness connected with nursing to which women are subject is usually a very much less acute form than that of child-birth. It occurs later than six weeks after delivery, commonly after many months. It amounts to 4 per cent. of all the recent insanities in women. It is essentially a mental unsoundness of nervous exhaustion and anæmia. The typical case is seen among the wives of the poor, who have had to struggle with poverty, have had many children in rapid succession, and have had insufficient necessities of life. I do not think there is a much harder lot among womankind than falls to the wife of a labourer who has, say, seven children all young, with broken sleep, no help, insufficient nourishment, and little fresh air for years together. If, in addition to this, there has been an inherited tendency to unsoundness of mind, what wonder that mental trouble falls on her? In one way the wonder is that any organism could have survived such bad conditions and stress of life. The best proof of the real cause of this form of mental unsoundness is the fact that in forty years' experience I have only had to treat very few cases coming from the well-off classes in mental hospitals, while I have had hundreds from the poor. This fact does not apply to the same extent in the unsoundness of mind of child-birth. The nursing case falls off her sleep, becomes depressed, perhaps acquires suicidal ideas, and feels herself entirely unfit for her work. When placed

under proper hospital treatment, the nursing being stopped, and she gets rest with good nourishing food, iron, cod-liver oil, and fresh air, she usually begins to mend, sleeps, becomes more cheerful, puts on flesh, begins to employ herself, and is well mentally and strong physically in from three to six months. Some of the cases, instead of being depressed, are excited. They all recover in the proportion of from 70 to 80 per cent.

Pregnancy.—Few women carry a child without being influenced mentally thereby in some way or other, but very few indeed become technically unsound of mind. This form amounts to only 1 per cent. of the mental unsoundness of women. It usually takes the form of depression, with, in frequent cases, suicidal tendencies. It commonly passes off at child-birth. When it does not do so the patient is apt to fall rapidly into a condition of permanent weakness of mind. Most cases are, and should be, treated at home, but it is well to watch them carefully on account of the suicidal risks. It occurs more frequently in the first than subsequent pregnancies, and in women who have passed thirty-five than among younger women. In bad cases, occurring early in the pregnancy, premature labour should be induced after consultation among competent medical authorities, and when the consent of relations has been obtained.

CHAPTER XXIII

CHIEF FORMS AND SYMPTOMS CAUSED BY ALCOHOL AND OTHER INTOXICATIONS AND INFECTIONS, AND BY INFLUENZA

THE body and mind are liable to be affected by an extraordinary variety of symptoms when the brain is poisoned in any way. Most of the forms of unsoundness so produced are apt to have certain characteristics in common. In the first place, every one of them has marked bodily symptoms as well as mental. The common sensibility, the special senses, the muscular action, and the nutrition are all affected in some form or degree. Pain or deadness of feeling, perversions of sensibility as to heat or cold or common sensation, hallucinations of the senses, or diminished sight, hearing, taste, or smell, changes in the normal expressions of the face and eye, muscular tremors, changes in the action of the pupils, inflammations and atrophies of the motor nerves, changes in speech and the articulation of words, a liability to convulsions, a change in the motor reflexes—one or more of these are found in nearly all of them. The mental conditions are very varied, and are especially apt to show emotional changes, delusions of suspicion, impulsive unreasoning action, marked loss of mental inhibition, loss of memory, impaired orientation, and impaired social instincts. Some patients are irritable, others are morbidly jolly from the same poisons. They all have this in common, too, that

if the intoxication or infection is long continued the mental power and energy become impaired and the patients are apt to pass into a greater or less degree of that enfeeblement of mind which has been said to be the goal of all the unsoundnesses—this being caused by permanent damage to the brain cells, which are first irritated, then degenerated, and then atrophied. Some of the patients stop short of this enfeeblement and remain merely in a condition of delusion all their lives.

ALCOHOL

Taking the effects of alcoholic intoxication first, as being the most typical and by far the most frequent, we find that the mental changes and bodily symptoms may be assorted into three chief forms.

Acute Alcoholism.—The first is the acute form, commonly called acute alcoholism or "delirium tremens." That follows bouts of drinking where a great quantity of the poison is taken, and commonly little food has been lately eaten by the patient. The emotional condition is one of acute depression with intense unfounded fears. In the early stages this frequently leads to suicide. I believe a large proportion of the suicides in Great Britain occur at this stage of alcoholism. There are vivid hallucinations of sight with fleeting delusions. The patient imagines he sees dogs, devils, or his friends or enemies in the room. Illusions occur, and the chairs and the figures on wall-papers are mistaken for living objects. The patient is intensely and morbidly suspicious, the memory is affected, he does not know his friends, and his power of attention is gone. There is impulsive action with little mental inhibition. The bodily symptoms are very characteristic. They consist of constant restlessness, tremulousness, jerkiness of all the muscles, or general convulsions, a high temperature, a weak action of the heart, no appetite, frequent sickness,

a loaded tongue, a rapid loss of body weight, and absolute sleeplessness. The speech is thick, the common sensation is blunted, there is tenderness in some of the muscles, the motor reflexes are dulled, the reaction of the pupils to light is impaired. This condition is of short duration, measured by days or weeks, and the patients either die, as they do in a few cases, or recover rapidly.

Some recent Italian authors have expressed the opinion that the symptoms of acute alcoholism are due, not to the direct action of the alcohol on the brain, but to toxins, not alcoholic, which are produced or liberated by it from the tissues of the body. In short, the effects are due to a secondary poisoning which the alcoholic irritation set up.

Chronic Alcoholism.—The second form of alcoholic unsoundness of mind is called "chronic alcoholism." This results from a prolonged course of taking too much alcohol day by day for years, so that every tissue in the body has become soaked with it. We find in such cases that its symptoms are frequently ushered in by convulsions. There is muscular inco-ordination, best shown by a change in the handwriting, the speech is thick and tremulous, the tongue quivering, the common sensibility and motor reflexes deadened. Mentally there is a confusion of mind with hallucinations of hearing rather than of sight, this being the most persistent and dangerous form of hallucination. There is a tendency to impulsive action, violence of conduct, loss of inhibitory power, and there are persistent delusions of suspicion, especially in regard to relations and to the food being poisoned. This last symptom commonly results from an inflammatory condition of the inner coat of the stomach through the irritation of the alcohol, so that when the patient takes food he is sick and suffers pain, and he attributes this to the effects of poison administered in his food. He is in reality being poisoned, but from within, not from without.

This condition is apt to last for months or to be

incurable. When the hallucinations of hearing and the suspicions persist for a long time incurability may be predicted, the patient becoming what I have described under delusional unsoundness. In such cases a craving for drink is always present. There is in this, as in all forms of alcoholism, a loss of the moral sense all along the line, of self-respect, of honour, of truthfulness, of natural affection, and of duty.

This form of alcoholism is liable to be mistaken for general paralysis in some cases, but the symptoms are distinct. It is, however, always well to let a little time pass before a definite diagnosis is made. I have seen many general paralytics who had been drinking heavily and had some of the symptoms of alcoholism engrafted on the specific characters of that disease.

Alcoholic Dementia.—The third form which alcoholic insanity assumes is that of a permanent deterioration and loss of mind—more or less mindlessness in fact. The memory is especially apt to be affected. Such a patient may not know the day of the week or the time of day, or what he had for breakfast. All the acute symptoms may pass away, but he lives on, a helpless and demented cipher in the world. The degree to which the mind may be thus deteriorated differs enormously in different cases, from just a shade of facility, loss of individuality and memory, up to complete helpless dementedness. In all forms and degrees of alcoholic dementia the craving for alcohol has passed off in most patients.

Power of Resistance to Alcohol.—There is an extraordinary difference in the power of resistance to the bad effects of alcohol in different persons. One man will drink for years or have bouts for weeks or months, and his mind cannot be said to be unsound technically, though no doubt the finer parts of his nature, especially his moral sense, will have undergone some deterioration. Other cases are so intolerant of the poison that a few glasses of whisky will make them completely delirious

for the time. This state has been called *mania a potu*, an alcoholic unsoundness of very short duration.

Dipsomania.—There is a form of mental unsoundness where alcohol or drugs come in, which is not as yet always recognized as an insanity, in which there is a persistent or periodic craving for drink with a lessened or lost power of control over such craving, but with much intellectual soundness. This is called "dipsomania." The most typical cases of this occur in adolescence and in persons of the nervous temperament with a bad heredity. The moral sense is lost in such cases, so that they will lie, steal, beg, or ruin themselves to obtain the stimulant. It is often periodic, coming on at times with intervals of sane control over conduct and power of doing work between. It commonly begins during adolescence. It is, when fully established, a very incurable state. The few cases that recover do so when adolescence is passed, about the age of thirty or so.

Drug Unsoundnesses.—The unsoundness of mind which results from an excessive addiction to certain drugs, such as opium, Indian hemp, chloral, and cocaine, have the same general features as those I have described under Alcoholism. In all of them an intense craving for the drug and a dependence upon it is established, with a loss of control over that craving. Cocaine is the most potent destroyer of mental inhibition we know. Its internal or hypodermic use, except for the most urgent symptoms, should never be resorted to, except for the most urgent medical reasons.

The unsoundnesses of mind which result from the infections from within are more apt to assume the form of ordinary melancholia, or mania, or delusion, and have fewer of the marked bodily symptoms than the alcoholic. The descriptions I have already given of alcoholic disturbed mental conditions apply to them, only in a minor degree and with some differences.

Treatment.—The general treatment of the alcoholic and the other forms of intoxication unsoundness go on the principle that the use of the poison must be stopped, and stopped immediately, in all cases, except in those from opium and cocaine, where we often find it necessary to stop them gradually on account of the heart and stomach symptoms that are present. The use of sedative and hypnotic drugs is often required where there is continued sleeplessness and great muscular agitation. In all of them suitable nourishment, such as milk and beef-tea, given at first in small quantities, are indicated. Most careful watching and nursing is also needed. Most of the cases of acute alcoholism are treated in ordinary hospitals, but when the symptoms run on they may require to be sent to special institutions.

Legislation Needed.—After the acuter symptoms have passed away comes perhaps the most important questions of all. How can such persons be prevented from taking again to the poison? How can their power of will, their self-respect, and their capacity for work be restored? For this we badly need new legislation giving the relatives of such people and the public authorities power to apply restrictive measures in suitable circumstances and suitable institutions, against the patient's will if need be. At one time the "liberty of the subject" stood as a barrier to such legislative measures; now public opinion is changing, the facts are recognized, and there is an almost universal consensus of opinion that such enactments should at once be passed. In the year 1909 two Departmental Committees, the one for England and the other for Scotland, after having taken the opinion and had the benefit of the experience of a large number of representative men and women in every sphere of life, have made most definite recommendations to that effect. As a member of the Scottish Committee I was exceedingly impressed with the unanimity with which the witnesses of every class and

profession—lawyers of repute, politicians, medical men, magistrates, chief constables, and clergy—expressed the view that such legislation was urgently required.

State of the Brain and Nervous System after Death in Alcoholic and the other Toxic Conditions.—We have the advantage of very definite proofs of the evil effects of the use of alcohol in the changes produced in the brain and seen after death, through the very accurate pathological examinations that have been made by various competent observers. I shall go rather fully into those on account of their importance. The brain has been examined by these investigators in every stage of the alcoholic process from the very beginning on to the worst effects. Those appearances are very marked indeed in the later stages of the process especially, and are instructive from the mental and pathological points of view. In the early stages the differences from the normal chiefly consist of swellings and darkenings in the body of the brain cells, of atrophies of the sheaths of the fibres, of slight thickenings of the blood-vessels, and of exaggerations in the structure which holds the cells together—the supporting tissue (neuroglia). Those are evidently all caused by the direct irritation of some poison on the brain. They are changes of a kind which there is reason to believe could be recovered from if the alcoholic poisoning ceased at that stage, and the brain was thereafter treated in a proper way. Such changes, in some degree, are probably common enough in acute alcoholism from which recovery takes place, and in persons who, though not drunkards in the ordinary sense of the term, have taken too much alcohol for years, but have not been mentally affected in such a way as to be considered technically unsound. No doubt an exact analysis of the mental and bodily condition of even such persons would show that in memory they are somewhat defective, in power of application to work rather deficient, in self-control showing some irrita-

bility, and in moral tone lowered. The symptoms show, even at that stage, that the poison has affected all the structures within the head more or less, and not merely the actual cells themselves. They constitute definite proof that damage is done to the brain of a visible and measurable kind by continued excess, even of a lesser degree, in alcohol.

If alcoholic excess of a more marked kind has been long indulged in, we find still more definite proofs of damage to the brain. Some of those are quite visible to the naked eye, and consist of thickenings of the membranes, morbid adherences of one part to another, and shrinkages in certain portions of the substance of the brain. Microscopic examination shows in a definite way the extent and the nature of this damage. The membranes surrounding and supporting the brain are all markedly thickened, the blood-vessels supplying it with blood are of undue size, being frequently tortuous instead of straight in their course, and the coats in a state of disease which makes them liable to burst and so cause apoplexy and paralysis. The supporting tissue (neuroglia) is enormously changed; instead of being almost invisible even by high powers of the microscope, it is extraordinarily exaggerated, and seems to take the place of the brain cells in some degree. It forms a dense closely felted substance. The effect of this in life, amongst other bad results, had been to interfere with the drainage system of the brain, through which the effete matter is rapidly removed from the cells. The accumulation of this used-up matter during life poisons the cells, irritates them, and interferes with their proper working. The cells themselves to a large extent show changes, their shape, size, and contents being altered. As efficient vehicles of mind and muscular movements they are evidently greatly damaged and many of them destroyed (see Fig. 13). The brain fibres too are thickened and altered so that their power

of proper conduction of nerve energy is interfered with. The whole brain is hardened in some places and softened in others, and its most delicate machinery changed for the worse. Those conditions produced by the alcohol have thus left permanent effects, which

FIG. 13.—BRAIN CELLS FROM A CASE OF CHRONIC ALCOHOLIC UNSOUNDNESS OF MIND IN VARIOUS STATES OF DEGENERATION AND DAMAGE.

a and *b* not far advanced, *c* and *d* much degenerated.

account abundantly for the mental and muscular unsoundness met with in chronic alcoholism and alcoholic dementia. To expect the brain in this condition to exhibit sound mind and steady muscular movements would be as unreasonable as to expect a watch to keep good time if its wheels were worn out and clogged up

with thickened oil, or to expect a motor to run well if its igniting apparatus was deficient and its cylinders worn down.

None of the toxic causes of mental unsoundness but those of general paralysis leave such marked traces in the brain as alcohol, but the pathological effects of the less damaging poisons are the same in kind if not in degree.

Our latest English pronouncement on the subject of alcoholic insanity is that by Dr. John Turner,[1] who would limit the term to such patients as have actual inflammatory change in the nerve fibres (neuritis), so that nerve impulses cannot pass freely along those fibres, either in the brain or in the nerves of the body. He makes out a good case for these being an advanced and very definite form of alcoholic damage to the brain, but our acceptance of his severe limitations would upset all our accepted nomenclature and leave us the most objectionable task of adding to the already too abundant nomenclature of nervous and mental disease. Causation may in certain cases be as good a basis for classification as pathological changes.

Alcoholic Damage elsewhere than in the Brain from the Action of Alcohol.—Excessive indulgence in alcohol affects nearly every organ of the body as well as the brain. As to why alcohol should specially select the brain in certain persons for its destructive effects, while in other persons those effects manifest themselves chiefly on the liver, kidneys, or blood-vessels, there are yet differences of opinion. All drugs, especially of the chemical character of alcohol, have a selective action more or less. Alcohol has this action more than most. It is a very curious fact noted by Dr. Mott that, after death, in the alcoholic cases where the brain has suffered, liver and kidney damage is not common. Next to the brain those organs are ordinarily the most liable to its evil effects. On the other hand, he points out that

[1] *Journal of Mental Science*, January, 1910.

in the cases where the liver and kidneys are specially affected the brain is apt to be very much less so. The explanation of the fact that alcohol selects the mental vehicle in the brain for its special destructive effects in so many cases is to be found in the nature and functions of the nervous system and its bio-chemical constitution. The spinal cord and the nerves ("alcoholic neuritis") are found to have undergone pathological changes, but not usually in the same degree as the brain in the chronic alcoholics.

Predisposition v. *Disease.*—We do not now believe that either the alcoholic craving or the tendency to alcoholic damage to the brain cells results from a direct and specific heredity. That is, the children of the alcoholic do not necessarily have a predisposition to alcohol, as opposed to a predisposition to congenital weakness, to mental unsoundness, to epilepsy, or any other nervous disease. To take an example where the father and the mother of a child have indulged in the excessive use of alcohol, before and during its life *in utero*, and the child has been thus poisoned from the germ cell till birth, he thereby acquires a weak constitution, his development is interfered with, so that he may be imbecile, while his defences are weakened against most forms of disease, and he is probably neurotic in character and prone to nervous affections. With these defects, he does not necessarily acquire a special craving for alcohol from his parents, as opposed to other mental or brain weaknesses. All that is definitely affirmed is that his mental inhibition will probably be weak, and the defences and innate resistiveness of his brain cells will be below par. The reserve stock of general energy and resistance which every healthy organism and every healthy organ possesses will be likely to be weaker in him than the average. If, not being able to withstand social temptations, he takes alcohol it will be likely to have a quicker and worse effect on him than even on

his parents. He will sooner acquire a stronger craving for it than they did. It will "fly to his brain" more quickly and more hurtfully than in the case of a person of an average constitution. He will require in childhood and youth more care in his nurture, diet, and general environment than an average individual. His health, in the early period of life especially, will need special attention. His education will require to be a suitable one, to counteract his predisposition. He will need more fresh air, should not put his brain to work in hard study, and he should take no alcohol whatever, during his whole lifetime. Teetotalism in his case should be a law of his being, if he is to give himself a fair chance. If the original power of resistiveness in his constitution was not too far weakened, Nature's law of striving to attain her average will have a chance of coming in and, by this means, preserve his mental health and bodily soundness for a reasonable period. The periods of development and of decadence will be his weak points during his whole life, and will require special attention. His brain cells, having a weakened defensive power, should not be subjected to such poisoning or stress as would upset them. In short, a predisposition has been transmitted, not a disease. That such predisposition may in some degree be counteracted by suitable environments is the latest conclusion of science, and a most hopeful and stimulating inference it is to medical men and social reformers looking to the prevalence of alcoholic excess in our population.

Influenza.—The damage from this usually takes the forms of lassitude, of inability and unwillingness to do ordinary work, of a lowering of the nervous condition, of an inability to enjoy life, of sleeplessness, of a sense of weariness and exhaustion, of an incapacity to think consecutively, or to exercise the will vigorously, of irritability, of difficulty of ready speech, of unfounded fears, of neuralgias, illusions and hallucinations, night-

mare, vivid and painful dreams, and even real insane delusions. The influenza poison has the evil tendency to discover the weakest points of the brain in men and women, and to bring out points that might otherwise have merely been potentialities and remained latent during the whole of life. Most of the patients recovered their normal condition, but many more said that "I have never been the same man since I had that attack of influenza." Dr. Savage has given a vivid account of the nervous affection which influenza may produce.[1] Dr. Friis, of Copenhagen, has written a large volume on the subject, epitomizing the views of a hundred authors.[2]

It will naturally be asked by thinking people, "How did the influenza microbe and its poison affect the brain cells so that those terrible mental and bodily effects were produced?" That question was one of the first to be asked by the brain pathologists, and it has been carefully investigated in the case of influenza and many other brain toxins. As yet we know only the general effects common to many toxins. We do not know the specific effects of each poison. Those general effects are somewhat the same whether the poison is that of influenza, alcohol, typhoid fever, lead-poisoning, or the septic results of the other numerous forms of hurtful micro-organisms. I have referred to those in speaking of the effects of alcohol on the brain and its soundness.

Fevers.—Many fevers, notably typhoid, typhus, scarlet fever, smallpox, erysipelas, acute rhuematism, ague, measles, cerebro-spinal meningitis, and yellow fever are all in some cases the cause of unsoundness of mind —scarlet fever being in my experience the most frequent, perhaps because this is now the most common of all infectious diseases. Thus is seen the range of the microbes and toxins which may affect adversely the mental vehicle in the brain.

[1] "Influenza and Neuroses," by Geo. H. Savage, M.D., *Journal of Mental Science*, vol. 38, July, 1892.

[2] *Journal of Mental Science*, April, 1899, vol. 45, p. 390.

CHAPTER XXIV

EPILEPTIC UNSOUNDNESS OF MIND

EPILEPSY is a disease of mystery and terror to the unscientific mind. It is no wonder that in ancient times the convulsions and the unconsciousness of the fits, their sudden onset, their frequent accompaniments of vivid hallucinations, acts of violence, startling delusions, and frequent association with religious perversions, led to the belief that the disease was due to possession by an evil spirit. No demon could by possibility produce more fearful results by entering into a man than I have often seen resulting from epilepsy. Epilepsy may co-exist with sanity, and history relates that the liability to an occasional epileptic fit may be compatible with the highest mental power, as in the cases of Julius Cæsar, Mahomet, and Napoleon. But, in the majority of cases, it is either accompanied by a liability to mental disease, or its long persistence tends towards impairment of the mental faculties. Its occurrence in early life is accompanied by, and is nearly always the cause of mental defect, in many cases amounting to imbecility. The estimates of its frequency quoted by the Royal Commission on the Feeble-minded are that there are over 32,000 sane epileptics, over 11,000 certified as insane, and 48,000 associated with congenital defects of mind in children, while there is an indefinite number living in workhouses. In addition to those there are large numbers among the well-to-do who are not acces-

sible to a statistical inquiry. It may be safely assumed that there are in the United Kingdom over 100,000 epileptics, far more than half of whom are mentally unsound. This agrees with the estimates formed by the various authorities quoted by Dr. Aldren Turner.[1] There is a curious and a hitherto unexplained fact as to the local incidence of the disease. In the Southern and agricultural counties of England, where wages are low, life stagnant, food not too abundant, and beer or cider a common part of the dietary, epileptic unsoundness of mind forms 11 per cent. of all the admissions to their mental hospitals. In the richer mining and manufacturing counties, such as Durham, Glamorgan, and Stafford, &c., and in some counties of mixed population, such as Sussex, the proportion is only about 5 per cent. In the large cities of England it holds an intermediate place, being about 8 per cent. In Scotland and Ireland it is less frequent than in England, amounting to only about 4 per cent. of the admissions to mental hospitals. My experience of a mixed institution with about one half the patients of the better-off class, and one half rate-paid, is that certifiable epileptic insanity seems to be extremely rare among the richer classes, not amounting to $\frac{1}{2}$ per cent. of the admissions.

The mental symptoms associated with epilepsy are feeble-mindedness, imbecility, and idiocy when it occurs early in life. When it comes on later in life two words express its marked features—irritability and impulsiveness. That is so at least in its early stages. If it begins, say at adolescence, and goes on for many years, the tendency is towards a gradual loss of memory, and diminution of mental power, progressing towards complete dementia. It is thus seen that the mental symptoms connected with this dreadful disease may range over every degree, from the slightest excess of irritable temper to complete mental extinction. The technically sane

[1] *Epilepsy*, by William Aldren Turner, M.D.

epileptic is apt to be irritable, selfish, rather peculiar, unsociable, and often given to alcoholic excess; his normal power of mental inhibition being in fact lowered. Through this characteristic, especially when its mental symptoms are aggravated by alcohol, as they so frequently are, it is the cause of frequent acts of violence and even of murder. There is an interesting tendency in some epileptics towards a religious emotionalism and religious delusion. They see visions and dream dreams, often imagining they have a mission from God, &c.

The mental symptoms are not commonly seen coincidentally with the first appearance of the epilepsy. They follow it by months, and, in some cases, by years.

Petit Mal.—There is a form of epilepsy called *petit mal* which consists of a short period of unconsciousness only without convulsions. It is damaging to the mental powers, but not as much so as the "grand mal." Very frequently there is a marked irritability and change of character before a fit occurs.

There is a very important and physiologically interesting relationship of the mental symptoms to the fits in a few cases, and that is their taking the place of the fits, the "masked epilepsy" of the French. This is a "mental equivalent" of the convulsions. The epileptic suddenly loses his normal consciousness, and does strange acts in a state of false consciousness, or commits crimes of violence, and after a few days, or, in some cases, in a minute or two, the normal consciousness returns. In such a case we say that the explosion has occurred in the mental areas of the brain instead of in the motor areas. Patients in this condition of "false consciousness" are occasionally capable of planning acts of violence, with no recollection of the fact afterwards. I had an epileptic patient once who was most friendly with me when well, but who during one of those periods of false consciousness contrived to make up a weapon, consisting of a stone tied up in the toe of his stocking, with

which he intended to kill me. After he passed out of this condition and was told about this, he said he had no recollection of it whatever, which I believed to be true.

Looking at epilepsy as a whole it is found to arise during the growing and developmental period of the brain in by far the greater number of cases. Taking the experience of Sir William Gowers and my own, his patients being general hospital cases, and mine those in mental hospitals, over 90 per cent. occurred over the age of twenty-five, and over 50 per cent. over the age of thirteen. The disease, therefore, I place among the "Neuroses of Development"[1] having an hereditary and clinical relationship to the whole series.

Heredity and Pathology.—The pathology of this strange disease has been investigated and speculated on by medical men from the age of Hippocrates, but definite conclusions are by no means yet arrived at. All authors now admit that a bad nervous heredity is the great predisposing cause. This implies a certain unstable quality in the brain neurons which is really the essential exciting cause of the disease. One of the latest theories on the subject, which is by no means yet proved, is that there is a certain production of toxin in the blood, which when it accumulates to a certain extent irritates the motor cells of the brain and produces the epileptic fit.

There are many pathological changes in the cerebral neurons and in the blood-vessels of the brain which are found after death in epileptics, especially in those where the disease has lasted long, but as yet there are no pathological conditions that can be considered as characteristic and definite. In the brains of epileptic imbeciles are found some pathological conditions which I shall describe under general congenital unsoundness. Cell degenerations, hardening, blocking of the small blood-vessels, increase of the neuroglia, have been described by various pathologists. Dr. John Turner, a most competent pathologist, has put

[1] *The Neuroses of Development*, by the Author.

forward the latest theory as to the cause of the actual epileptic attacks.[1] It is that through local blockings of the small blood-vessels, portions of the brain are temporarily deprived of their blood supply. Those blockings, Dr. Turner says, may consist of "(*a*) Spheres or mulberry-like masses lying free in the blood-vessels. (*b*) Hyaline material clinging to the vessel-wall, and blocking itself. (*c*) Finely granulated debris. (*d*) Fibrin threads."

Treatment.—The treatment of epileptic unsoundness of mind may be summarized under the following headings: (1) Colonies for the sane epileptics, and those with the milder mental symptoms, whether of defect or of mere irritability. (2) Schools for the feeble-minded in the case of the children. (3) Mental hospitals for those with acute and dangerous symptoms. (4) A diet containing little of the more stimulating kinds of animal food, such as beef or mutton, and no alcoholic drinks. (5) Attention to the general health, and especially to the condition of the bowels. (6) Much outdoor life, and employment such as gardening. (7) The steady and continued use of the bromide of potassium in doses suitable to the age, weight, and constitution of the patients, for nearly all cases. If there is a therapeutic fact proved in medicine it is that such use of the bromides, judiciously and medically used, has in the majority of the cases the power of diminishing, or even, in some cases, abolishing the fits, and of greatly improving the mental and the bodily condition of the patients.[2]

The general course of epilepsy and epileptic unsoundness of mind is that the patients in most cases do not improve, but tend to become steadily worse, in other cases, that they improve greatly, in a few that they attain a condition of practical sanity, and in a very few indeed that the disease is entirely cured.

[1] *Epilepsy*, by William Aldren Turner, M.D., p. 182.
[2] *Clinical Lectures on Mental Diseases*, 6th ed., by the Author, p. 459.

CHAPTER XXV

GENERAL PARALYSIS

OF all forms of brain disease with unsoundness of mind, general paralysis is, perhaps, the most interesting scientifically. It always has distinctive and marked bodily as well as mental symptoms, and its course, termination, and pathology can be predicted. It has been, and is now, being studied with unusual keenness in all civilized countries. Many of us regard it as being one of the chief keys of our future knowledge of brain and mental diseases, as its first description by Bayle, a French physician, in 1822, was the starting-point of the modern clinical study of unsoundness of mind as a brain disease, thus exploding the older spiritual and metaphysical theories of the disease. Statistics show that it is increasing of late years in our cities and industrial centres. It has carried off some of the most brilliant men of recent times. It occurs most frequently at mid-life, thus arresting dramatically the career of its victims in the heyday of their life's work and fame. It is almost unknown in quiet country places. It used to be attributed to excess of alcohol, over-sexual intercourse, dissipation, over-brain work, brain injuries, and the rush of modern life—and no doubt those predispose to its occurrence. Recent study has convinced most of us, however, that it is for the most part connected with the syphilitic poison, for the infection by which men are

themselves responsible. This acts as the chief predisposing cause. A further microbic infection is, we are getting now to think, its exciting and immediate cause. This latest theory of its causation which Dr. Ford Robertson has the high distinction of having thought out and worked at incessantly for the past six years,[1] has naturally led to the hope that by using anti-toxins or serums its course may be arrested at the beginning of the disease, as that of diphtheria now is. The microbe, *Bacillus Paralyticans*, which was discovered by Dr. Ford Robertson, and is held by him to be its cause, is strikingly like the *bacillus* of diphtheria. Its study is now in that stage of almost feverish scientific expectation of a great discovery which greatly stimulates the minds of investigators. Robertson's attempts to cure or arrest the disease by serums and vaccines prepared by himself, have had most striking and encouraging results. In some ways the disease is now looked on in quite a different way from what it was before his investigations. The "Wassermann test" seems to indicate that syphilis has nearly always preceded its symptoms. I believe that general paralysis may occur without previous syphilis. Only about 1 per cent. of syphilitics fall into this disease, so that it seems certain that another cause must come in to determine its existence, and a microbe is in all probability the missing link in the chain of causation.

The patient who suffers from this dread disease usually begins by showing premonitory symptoms, consisting of a change in disposition, diminished energy, want of full enjoyment of life, or slight depression. He also often suffers from severe headache, eye symptoms, pains elsewhere in the body, a falling off in appetite and colour, and digestive derangements. This is called the preliminary stage of the disease, but it is not always present, and its symptoms are not so distinctive that the disease can be definitely diagnosed from them. They may, on

[1] *Pathology of Mental Diseases*, by Dr. W. Ford Robertson.

the other hand, all be present, and yet no general paralysis follows them.

Then begins the really definite "first stage" with slight defects of speech and changed expressions of the emotions in speech and the face muscles, with eye symptoms also, all these accompanied by morbid elevation. The "classical" form of the disease soon goes on to a mental exaggeration of the most striking kind. The sufferer has extravagant delusions of grandeur, believing such delusions as that he possesses millions of money, that he can write immortal books, that he has the strength to lift tons in weight, that he is a king or some great character, &c. His speech gets tremulous and slurred more and more. The kind of speech is characteristic to a practised eye and ear. The lips, facial muscles, and tongue tremble when the patient speaks or smiles, especially when such test words as "Royal Artillery," "hippopotamus," "British Constitution," "Constantinopolitan" are articulated. The patient slurs the last syllables. The timbre of the voice is also altered. The handwriting becomes slightly tremulous, and letters are omitted in the spelling of words, or some words are not put in. His temperature rises somewhat; he does not sleep; he is constantly restless and excited. Once seen, a man in that state is never forgotten.

If he does not die of exhaustion, or convulsions, to which he is subject in the first stage of the disease, within a few months, he passes into a less excited and exalted stage, the "second stage," with mental confusion, apathy, silliness, and further loss of face expression and speech. The face looks heavy, dull, and expressionless. He gains in weight, and cannot walk far without his legs failing. He is facile and mentally is mildly demented. Many Continental authors call this disease "Dementia Paralytica," on account of its sure ending in mental enfeeblement and dissolution.

The "third stage" is one of more or less complete

paralysis without the power of articulate speech or walking. The patient lies on a water-bed, gradually weakening until the end comes, usually in a few months.

All the cases of general paralysis by no means conform to the "classical" type I have described. Those of us who have observed the disease for many years have noticed that this type is less common than it used to be, although the disease, as I have said, is more frequent. The actual majority of the cases we see now are of a quiet and frequently non-delusional type. The patients from the beginning gradually fail in mental energy and in speech, becoming facile, foolish, and irritable, slowly getting more paralytic, and without any marked distinction between the various stages. The patients, in fact, pass into gradual mental dementia and bodily paralysis. Then there is another variety where the disease from the beginning is characterized by epileptiform convulsions ("congestive attacks") and periods of unconsciousness, which often terminate the life of the patient. There is a third variety where after the early stages of disease are developed all the symptoms appear to pass away, so that the patient seems quite well for a time —those we call remissional cases. The bacteriologists say that this is accounted for by the establishment of an "immunity" against the poison for a time. I have seen such a remission last for fully a year or more, during which the patient was to all appearance sane in mind and had no speech difficulties, though a careful and scientific examination would show defects. There is still another variety where the disease is a continuation of another similar condition in the spinal cord, we call this the "tabetic." The disease, in fact, in these cases propagates itself from the spinal cord into the brain after having existed as "creeping paralysis" for many years. But whatever variety the disease assumes, its chief characteristic is a downward *progression* of mental and bodily symptoms till death is reached.

General paralysis should never be diagnosed except there are both mental and speech disturbances combined. We may have all the ideas of grandeur and the excitement, and yet the case not turn out to be one of general paralysis. It is most important to keep this in mind, because to diagnose general paralysis is almost to pass sentence of death on a fellow-man.

My late assistant, Dr. George R. Wilson, believed that there was a certain variety of the sanguine temperament which predisposed to general paralysis. He described such a man as strong, vigorous, enthusiastic, optimistic, fond of society, and inclined to dissipation, "with a preference for handsome women."

The average duration of the disease is from two to three years, but a unique case was put on record by myself where it lasted for thirty years. Dr. Blandford has recorded another where the man lived for twenty years from the beginning of the disease. The patients who live for from five to ten years are not very uncommon. On the other hand, patients sometimes die in a few months.

There are certain diseases whose symptoms so imitate those of general paralysis that at first, and if the examination of the patient is not done with exceeding care, may be mistaken for it. Those are certain forms of alcoholism, brain syphilis, epilepsy, mania, tumours of brain, softenings of brain, and senile breakdown. But of those alcoholism only gives the physician really great uncertainty in coming to a diagnosis.

As yet no certain remedy has been discovered for this disease, though the use of anti-serums and vaccines is found by Drs. Robertson and McRae to have the power of arresting its course, temporarily at least, and permanently in a few cases. Keen hopes are entertained, by some of us at least, that a cure is possible and imminent on those lines. The *Bacillus Paralyticans* when artificially grown on jelly and then injected into mice,

rats, rabbits, and goats produces a paralytic condition closely resembling the disease in man.

Pathological Appearances. — After death the whole brain is found in a more or less diseased condition. Not only is the brain affected, but the spinal cord, and the nerves of the limbs. Especially the upper and fore parts of the brain, the cells of which are the chief vehicle of mind, are first affected. The nerve cells and nerve

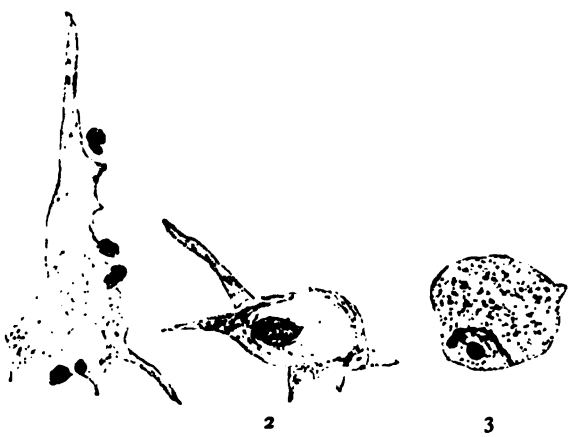


FIG. 14.—BRAIN CELLS FROM A CASE OF GENERAL PARALYSIS SHOWING VARIOUS STAGES OF DISEASE.

1. First stage, cell processes disappearing, nucleus displaced. 2. Cell protoplasm almost gone. 3. Cell is atrophied and entirely degenerated.

fibres, the blood-vessels, the neuroglia, and the membranes are all found diseased.

General paralysis is, on the whole, the most marked example and illustration of the way in which brain cell and mind go together when the former is undergoing the process of disease and ultimate destruction. In its first stage, when the bacillus, and the toxin it produces, is irritating the cells, there is much congestion of blood in the brain cortex. This stage is analogous to the

excited condition which alcohol produces in many people, and for the same reason, namely the undue stimulation and irritation of the mental cells (Fig. 14, 1). In the second stage, when the mind is markedly deteriorated, and there is [illegible] of action in all the muscles of the body, the cells are found to be partially destroyed (Fig. 14, 2). In the third stage, when there is virtual obliteration of mind and paralysis everywhere in the body, both the mental and motor cells of the brain are to a large extent atrophied (Fig. 14, 3). The best detailed description of the pathological appearances found in the brain after death are to be found in Bevan Lewis's *Text Book of Mental Diseases* and Ford Robertson's *Pathology of Mental Diseases*. Both these authors have added much to our knowledge of the pathology of the disease by their original observations and microscopical work.

CHAPTER XXVI

UNSOUNDNESS OF MIND FROM SOFTENINGS OF BRAIN, APOPLEXIES, TUMOURS, INJURIES TO HEAD, SUNSTROKE, AND OTHER GROSS LESIONS

THERE are many persons who are damaged in mind from brain diseases of a gross nature such as brain softenings, apoplexies, tumours, injuries to head, sunstroke, &c. The first two of those are frequently complicated by senile deterioration. The mental condition of such cases is commonly that of more or less enfeeblement, with sometimes morbid suspicions, restlessness, impulsive actions, and sleeplessness. The whole class are examples of the necessary connection of sound mind with sound brain. When the mental areas of the brain are grossly damaged in those ways it is impossible to have sound or strong mental action. But in pathology and in essential nature they are different from general paralysis which I have just described. They are not specific in character and course and may all exist without definite mental accompaniments. None of them run a definite course like general paralysis. Those who have suffered from previous sunstroke are the only persons of the class who are commonly dangerous. Careful nursing at home is the proper treatment for such cases who are manageable and not dangerous to themselves or others. They are sometimes subject to aggravations of the mental symptoms when restlessness

and noise make them difficult to manage. At the commencement of such attacks too the mental symptoms may be severe, and some of them may even be suicidal. Among the poor many thousands of such persons are sent to workhouse hospitals, where they receive suitable nursing and do not count in the official statistics of unsoundness of mind at all, being reckoned as ordinary nervous invalids. Of late years such mentally and bodily maimed people have been increasingly certified as "lunatics" during temporary aggravations, and in that way a considerable apparent increase of technical unsoundness of mind in the country is made to appear.

CHAPTER XXVII

UNSOUNDNESS BY ARREST OF MENTAL DEVELOPMENT EARLY IN LIFE — FEEBLE-MINDEDNESS, IMBECILITY, AND IDIOCY

AMENTIA

THE forms of unsoundness of mind of which I am now to treat are the conditions that the recent Commission on the Feeble-minded have classified as "Feeble-mindedness," "Imbecility," and "Idiocy."[1] Dr. A F. Tredgold,[2] the latest author on those states has given an admirable account of their bodily and mental symptoms and their varieties. He thus defines them, taken together—"A state of mental defect from birth, or from an early age, due to incomplete cerebral development, in consequence of which the person affected is unable to perform his duties as a member of society in the position of life to which he is born." He carefully excludes from his definition the merely dull-witted man and the "backward" child, and he does not include acquired mental unsoundness except when that is implanted on and superadded to original mental deficiency. It was the existence of this form of unsoundness of mind, the difficulty of the care and control of the persons who suffered from it, the dangers

[1] *Report of the Royal Commission for the Care and Control of the Feeble-minded*, 1908, 8 vols.; vol. viii. containing the Recommendations.
[2] *Mental Deficiency* (*Amentia*), by A. F. Tredgold. 1908.

of society from the presence of many of them, and the necessity for new legislative measures in regard to them, which prompted the Government in 1904 to appoint a strong Royal Commission, consisting of experts, social reformers, lawyers, medical men, clergy, and politicians, to investigate and report on the "Care and Control of the Feeble-minded." This Commission took an enormous mass of evidence in this and other countries. The minutes of the evidence taken before it and its Report, in the shape of eight large volumes, contain such a vast amount of information and opinion as to be almost exhaustive on the subject, so far as facts were obtainable, and the science of the present day has advanced. In this chapter I shall frequently have to refer to the facts brought out by this Commission and to its conclusions. In the midst of its work the Government of the day enlarged its scope by adding technical Insanity and the "Lunacy" Laws to the subjects about which it was to inquire and report. The importance of congenital defects of mind is shown by the general statistics brought out by this Commission, namely, that there existed of this class in England and Wales on 1 January, 1906, 125,827 persons, equivalent to one person in every 273 of the population.

Looking to the classification adopted by the Commissioners, the "Feeble-minded," or the high grade, are much the most numerous of the three divisions, being three times as great as the Idiots and Imbeciles combined, while the Idiots are the least numerous. The proportion in every hundred of the whole class is—six idiots, eighteen imbeciles, and seventy-six feeble-minded persons. A considerable addition must be made to those numbers if we are to get the real prevalence of this condition, for the Commission had no means of ascertaining the number of either of those three classes among the well-to-do, who keep them at home, and the natural tendency of relations, especially of mothers, is

to minimize those conditions and absolutely refuse to admit that they exist at all in their families. Their very name is so displeasing to most people, and so abhorrent to the maternal instinct of believing nothing ill about children, that this concealment is only natural. It is one of the examples of the blessed psychological blindness to disagreeable fact which Nature has implanted in every mother's breast. Founding on my experience of over forty years of inquiry into family histories and observations among my friends and acquaintances, I should add at least 20 per cent. to the figures of the Commission, so making the numbers of the undeveloped in mind of every kind to be about 150,000.

The local incidence of this class is interesting and important in many ways. The Commission found, what many of us knew before, that there are more defectives in our country districts, and generally in rural, non-manufacturing countries, than in the towns and more populated localities; while in the latter we know there is more of the acute varieties of acquired mental disease. Probably there are two causes for this—namely, the emigration of the young, vigorous, and enterprising from the country to the towns, and the far greater chances of longevity of feeble-minded children in country districts. As pointed out in the 45th Report of the Scottish Lunacy Commissioners, the enormously greater mortality among children in the large towns, as compared with country districts, necessarily lessens the numbers of feeble-minded in the former. In treating the numbers and the incidence of feeble-mindedness as compared with acquired unsoundness of mind, it must be kept in mind that necessarily far the larger number of the former class exist at the early ages, while the greater number of the latter exist at the later periods of life. It may be taken that the absolutely largest number of our imbecile population are found under the age of fifteen,

while the largest number of our unsound population on their admission to mental hospitals, *i.e.*, as near as can be ascertained when the mental disease has come on, is found in the twenty years from twenty-five to forty-five. The number of the unsound in mind in mental hospitals under fifteen years of age stands in the Lunacy Blue-books as 1·3 per cent. of the whole, and no doubt most of the patients of this age are really of the defective class that have been certified as "of unsound mind."

The above classification adopted by the Commission on the Feeble-minded is only one of the many adopted by various authors in this country and on the Continent. The other modes of classification are founded on more scientific and medical ideas, and are more liable to change as science advances. One of the best known and most commonly adopted in medicine is that by the late Dr. Ireland in 1872. It was based on clinical and pathological data, following in that respect the classification of the insanities devised by Skae of Morningside. The following are Dr. Ireland's groups—Genetous Idiocy; Microcephalic Idiocy; Hydrocephalic Idiocy; Eclampsic Idiocy; Epileptic Idiocy; Paralytic Idiocy: Traumatic Idiocy; Inflammatory Idiocy; Sclerotic Idiocy; Syphilitic Idiocy; Cretinism (including the Endemic and Sporadic and Myxœdematous forms); Idiocy by deprivation.

Dr. Tredgold divides the whole of the defectives into two great groups—the one he calls "Primary Amentia," or "Intrinsic." This group covers by far the largest part of the field, forming 90 per cent of the whole. The keynote of the class is a bad brain heredity. The higher nerve cell of the brain, the "neuron," is arrested in its growth and development from intrinsic causes *ab initio*. The diseases and defects which constitute the hereditary factors are not necessarily and exclusively nervous, for in addition Tredgold puts Alcoholism, Tuberculosis, Syphilis, Consanguinity, and the ages of parents.

Nervous diseases and defects which have occurred in progenitors need not have been of one kind. Insanity, Epilepsy, Paralysis, and many other brain diseases in the ancestry, are liable to be followed by feeble-mindedness in the offspring. Morell laid down a typical succession of morbid nervous conditions liable to follow each other in four successive generations, each being an accentuation of the one preceding it. The first consisted of persons who would ordinarily be described as "nervous"—that is, they had unstable brains with exaggerated reactiveness to stimuli from without. In the second generation there was a liability to depression of mind. In the third generation attacks of mania and acute melancholia were seen. In the fourth generation—and this class I venture to add to those of Morell—there is a liability to unsoundness of mind between puberty and twenty-five (my "Adolescent Insanity"), tending to end in mindlessness—secondary dementia—with some examples of developed weakness of mind—that is, the "Feeble-mindedness" of the Commission. In the fifth generation Nature ended a bad stock by producing imbecility and idiocy. This Morell called a typical process of "degeneracy." As a matter of fact, this sequence is seldom met with precisely on those lines, but there can be little doubt that the general idea represents the facts. It is the fate which Nature lays on the nervous stocks which intermarry and are not renovated and counteracted by "fresh blood" or specially preventive environment. Dr. Tredgold adopts a further and more specialized classification in which he sorts out the classes into clinical varieties, adopting among those most of Dr. Ireland's forms.

There are four other methods of looking at and classifying mental defect adopted by the scientist: First, the degree of the defect; second, the cause of the defect; thirdly, the pathological or kind of brain damage; and lastly, the clinical view which may take into account all the others, with the additional considerations of the

medical symptoms present, the effect of education and treatment, and the probabilities of improvement or further deterioration of mind or body.

The Feeeble-minded.—The person labouring under feeble-mindedness ("High Grade Amentia"), as suggested by the College of Physicians of London and adopted by the Commission, is thus defined: "One who is capable of earning a living under favourable circumstances, but is incapable from mental defect, existing from birth or from an early age, (*a*) to compete on equal terms with his normal fellows, or (*b*) to manage himself and his affairs with ordinary prudence." If such feeble-minded persons are under the age of sixteen they are designated in a special Act of Parliament as "Mentally Defective children" and they are defined in that Act as "those Children who not being imbecile and not being merely backward, are, by reason of mental defect, incapable of receiving proper benefit from the instruction in the ordinary public elementary schools, but are not incapable by reason of such defect of receiving benefit in such special classes or schools as are in this Act mentioned."

This class of feeble-minded can speak and walk and think, within limits. They include the persons who in Scotland used to be called "naturals" and are the "fools" of common speech. They, no doubt, differ in degree and kind, so that no short description can be made to include them all. The type is a harmless, not interesting, but not repulsive person, who is not "bright," who has little initiative, who is only capable of being interested in children's books and children's occupations, who has the faculty of imitation to some extent and can be kept clean and tidy in person. The affective faculties may be fairly well developed, sometimes indeed well developed, so that he or she is affectionate and responds readily to kindness. While the feeble-minded seldom attain to beauty, they seldom sink to repulsive ugliness in personal appearance. They can employ themselves, especially in household

work and in simpler occupations, but commonly need supervision. Sensation and co-ordinated movement is below the average in them. They are capable of acquiring good and bad habits. They have fairly good bodily health, but commonly do not attain advanced age, and are apt to sink into senility before their time. A considerable proportion of them show "stigmata of degeneration." They are liable to the various forms of tuberculosis if the conditions in which they live are not hygienic.

Imbeciles.—The definition of the second class of "Imbeciles" ("Medium Grade Amentia") adopted by the Commission is this: "Persons who are capable of guarding themselves against common physical dangers, but who are incapable of earning their own living by reason of mental defect existing from birth or from an early age." The power of thinking among this class is very low indeed, represented, let us say, by that of a normal child of four or five. The affective side of the mind is commonly low, so that the term "affectionate" scarcely applies to them, though to this there are marked exceptions, but they are capable of appreciating kindly treatment. The memory is often irregular, strong in regard to certain concrete things, weak in regard to most others. They are incapable of abstract ideas; their sensibility to pain and cold is lessened; their movements are awkward and wanting in precision, grace, and harmony; they all have some of the "stigmata of degeneration"; their expression of face and eye is apt to be unpleasing, and most of them sink into ugliness. Their size is below the average. They are not imitative, they attain good habits with difficulty, and those are easily lost. Speech in them is mostly defective; they are liable to various diseases, especially tuberculosis, and usually die young.

Idiots.—In regard to the third class, viz., "Idiots" ("Low Grade Amentia") the Commission adopts the following definition; they are: "Persons so deeply

defective in mind from birth or from an early age that they are unable to guard themselves from any physical danger, such as, in the case of young children, would prevent their parents from leaving them alone." In the typical idiot proper articulate speech is altogether absent or very poor. He does not think in any proper sense. His affective faculties are absent or exist in a very slight degree. His memory is poor, his will-power may be said to be almost gone; he is deformed and small in body. His movements are either imperfect or very awkward. He has little power of imitation. His condition is represented by that of a child a year old, and is far exceeded by that of an intelligent dog. He is incapable of long life, and two-thirds of them die of tubercular disease.

Tredgold's second great division is "Secondary Amentia," where the causes are extrinsic, and occurred before birth, or comparatively soon after, or during birth. This class is a small one, covering only 10 per cent. of the category.

Liability to Death and Disease.—The essential weakness of constitution of the defective and his lack of defensive power against disease is perhaps best shown by the fact that few of them attain to old age, and that, comparing their mortality rate with that of the general population of the same age, it is at least ten times as great. Looking to the causes of that enormous mortality, the striking fact comes out that 40 per cent. are found to die from tuberculous disease. This means that the defences of their lungs and glands against the tubercle bacillus amount to only one-fifth of that of the average child and adolescent. The defective, in fact, develops slowly and on bad lines, especially his brain does so. His neurons, being the highest cell formation of the human being, are especially poor, and he is non-resistive in his defences to most forms of diseases. He is emphatically the most marked example of the unfit evolutionally to be met with in

human beings, this being, in most cases, the result of a bad heredity.

Defectiveness from Sense Dullness or Deprivation.—It is now a well-recognized physiological and psychological fact that the development and the education of a human being depend chiefly on the continual stimulus to which the mental neurons are subjected from birth onwards by the constant inflow of impressions from the special senses. It naturally follows from this that where those special senses are defective or absent, mental development is slow or deficient. A careful study of deaf-mutes, where the great sense of hearing has not existed from birth or early childhood, shows that the mental condition is apt to be defective or peculiar. Deaf-mutes need a special mode of education, which is a slow and laborious one, to make them even under-average members of general society. Without such education they are apt to be still more deficient in intelligence and lacking in control.

When the two greatest of all the special senses, sight and hearing, are both absent, or very deficient, in the child, the result is a condition resembling idiocy, but in most ways it is essentially different, from a scientific point of view. Dr. Howe, of Boston, that paladin of philanthropy, demonstrated this very clearly when he took in hand and devoted years of his life to the education and development of Laura Bridgeman, who could not hear or see or speak, and who could therefore only be educated by the sense of touch. The result of Dr. Howe's efforts was that she became a woman of active mind, good intelligence, capable of work, and with abstract ideas of a high order in regard to religion and morals. Her case was, and must ever remain, the great romance of mental defect. Many similar cases, notably that of Helen Keller, have directed the attention and excited the sympathy of mankind to this condition, its interest and its needs.

Postponement of Faculty Development.—In connection with defects of the special senses and faculties the fact of a postponement in the development of the mental and brain faculties, to an abnormal extent in some cases, needs to be taken into account to a degree not hitherto fully realized. The faculties of the mind, and its great exponent, speech, may, instead of being developed in the usual order, and at the usual time, be postponed for years in a child, and yet the process of development may assert itself, and such children may catch up to their normal fellows in due time. I have seen a child of eight who could not speak and yet at eleven her speech was normal. We doctors should keep this fact in mind in a large number of cases in regard to which we are consulted, and should not give an absolutely hopeless prognosis in some of the early cases. The causes of such postponements of development are unknown in most cases, but in others the occurrence of zymotic diseases, starvation, injuries to the head and unfavourable environments can be put down as causes.

Uncqual Development of Certain Mental Faculties in some Defectives.—Some of the feeble-minded and a few of the imbeciles show special talent in certain directions—some in music, some in drawing, some in general imitativeness, and some in a high power of constructiveness, while some are weak in all that is good and show much cunning and evil impulses in many things that are bad. A most important question for society arises out of the fact to which I have already referred, that a very considerable percentage of criminals may be properly described as defectives in the higher mental and moral faculties. Those persons are as much "born criminals" as others are "born idiots." Dr. Tredgold gives, under the heading of "Idiots Savants," a description of a certain class, and particularly of "The Genius of Earlswood Asylum," a man very far above the average of human beings in inventiveness, draughtsmanship, and mechanical construc-

tiveness, who, while unfit, through his marked mental general weakness and lack of control, of living in the world, has made most beautiful and elaborate drawings, and has drawn and constructed a model of a ship which "it took him three years and three months to complete, and every detail, including brass anchors, screws, pulley blocks, and copper paddles were actually made by the patient from careful drawings, which he had prepared beforehand." "It contains 5,585 copper rivets, and there are thirteen lifeboats, hoisted on complete davits, each of which is a perfectly finished model. It is fitted with paddles, screws, and engines, and it contains state cabins, which are decorated and furnished with chairs, tables, beds, and bunks. In fact, the whole thing is complete to the most minute detail, and will bear the closest inspection." This man has made many original mechanical inventions; but this "genius" is a cipher in the world, without personal liberty, with no responsibility, and has to live in an "idiot asylum"! Some of the feeble-minded show an extraordinary power of memory, and others a wonderful power of almost automatic calculation. I knew one such who could tell me exactly what I said to him at a single interview years before, and another who could in a second tell the day of the week on which Christmas or Easter would occur five years hence.

Education and Treatment.—No branch of philanthropic effort appealed of old less strongly to the sympathy of most men than the right care of the idiot and the other forms of mental defectiveness. To take an interest in him, to study him, to care for him, to build suitable institutions for his treatment, to improve vastly his conditions in many ways, to be kind to him, to love him, and all this without hope of his ultimate cure, may well be put down as one of the triumphs of the Christian philanthropy of the nineteenth century, directed by scientific knowledge. As to treatment, there is no specific drug, except thyroid extract in Cretinism, which is of any

special service. The great things are, carefully to develop and sustain the body, to keep it always well nourished, to give suitable food which should not contain much animal diet, to train in good habits, bodily, mental, and moral, to make their lives systematic and orderly, to devise and carry out suitable employment, and to select suitable educational institutions according to the degree and kind of defect that exist, and to send the patients to such institutions—these comprise the main indications for the benefit of the defective. There are surgical measures which may be employed with advantage to remedy certain bodily defects—the teeth have to be attended to, adenoids and enlarged tonsils and cleft palates have to be surgically treated. Troublesome contractures and club-feet may be greatly relieved in many cases by surgical interference and surgical contrivances. This is not the place to go into detail as to the education of the feeble-minded and imbecile; but principles and practice suitable for them, when applied, effect a marked amelioration in many cases. They have all been devised by thoughtful medical educationalists on scientific lines. The principles are to train the senses and muscles, to excite interest in something, to teach the children to play, to fix on some simple industry that the child is fit for, to make all the processes of education concrete and not abstract, to take advantage of strong points, and to tincture all the education and training with an abundance of patience. As to religious and moral training, they are not to be neglected, but they must always centre round the improvement of mental inhibition and the habits of everyday life.

Clinical and Pathological Varieties of Defectives

The chief of the clinical and pathological varieties of Amentia, as distinguished by Ireland and Tredgold, are

the Microcephalic, the Epileptic, the Mongolian, and the Cretin, all of which are included in Ireland's Genetous type. There are various other forms due to or complicated by cerebral disease or blood-damages.

Microcephalic.—The Microcephalic, or small-headed form of defectiveness, is that which is perhaps in the popular mind the type of all idiocy. The average circumference of the skull in man is from twenty-one and three-quarters in the female to twenty-two inches in the male, while in this form of defect it may go down to fifteen. It is usually held that a head less than seventeen inches in circumference must necessarily imply defect of mind. The anterior part of the brain, that more especially connected with the mental functions, is that which is defective, but the whole brain is an incomplete and undeveloped vital organ. The outward appearance of the small-headed idiot is bird-like and repulsive. Lombroso vividly describes such a patient as a "bird-man," a "rabbit-man," and a "goose-man." The forehead slopes back, the eyes are close together, the upper jaw projects, and there is a look of stupidity with sometimes a suggestion of an imbecile cunning. The patients who suffer from this form of defect are often active, mischievous, and difficult to manage until they are subjected to training, when they become, in most cases, even affectionate, well-behaved, and amenable to the discipline of the institution. Many of them are subject to epileptic fits, but this I shall speak of under the head of the epileptic variety. Some of them exhibit a curious mimicry of general intelligence and of the actions of those about them, some having even a real power of observation. They seldom grow to greater height than five feet. The Aztecs were a pair of Microcephalic idiots who were exhibited in Europe and America, and in that way made this condition known to the public with a curiosity for prodigies.

Mongolian.—The Mongol, or "Kalmuc," idiot is rare

but striking. The skull is flattened from before backward; the head is small; the fissures between the eyelids are narrow, and slope downwards and inwards, giving the expression an Eastern look. The tongue is large, rough, and fissured, with a tendency to loll out of the mouth. The hands and feet are commonly flabby and clumsy; the little fingers and thumbs are commonly shorter than usual; the skin is rough and dry; the circulation is defective. The Mongol dies early. Mentally he is lethargic, affectionate, and easy to manage. The class mentally runs in all the grades between feeble-mindedness and complete idiocy.

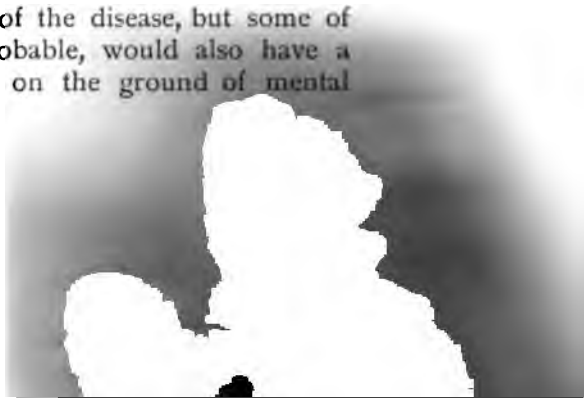
Cretinism.—A strange condition of body and mind is found among some of the inhabitants of the valleys of Switzerland, of the Himalayas, of the Andes, and Rocky Mountains, which has attracted a great deal of attention among scientists. The characteristic bodily feature of those cases is the enlargement and altered condition of the thyroid gland in the neck. It has been discovered by physiologists that this gland secretes a substance which is exuded into the blood, its presence being essential for the proper growth and health of the human being. In the Cretins this secretion is not present in proper quantity or kind, the result being lack of bodily development, imperfect nutrition of the body, and mental enfeeblement. The child from its birth does not grow as a normal baby does. The development proceeds not only slowly, but in wrong directions. The majority are dwarfish. The skin is dry and wrinkled. The head is large, and the tongue so large that it often lolls. The body is unwieldy, and the walk unsteady. Puberty is often delayed. The mental state varies exceedingly from children who merely live and no more up to persons who can earn their livelihood in simple work.

Treatment by the continuous administration of the extract of the thyroid gland of animals, if begun early, is, in many instances, followed by marvellous

curative results, both in regard to bodily development and mental intelligence. The commonly held theory as to the cause of Cretinism is that of some chemical defect or toxic quality in the water-supply of the districts where it occurs.

Defectiveness with Epilepsy.—The great motor-explosive disease of epilepsy is, if it occurs early in life, the cause of unsoundness of mind by defect in a large number of cases. I have already spoken of epilepsy and its mental effects in the adult. Any kind of convulsions occurring in children, even "teething fits," are dangerous to the brain action and to the future mental development. Such convulsions, whether truly epileptic or otherwise, are found, according to Thredgold, in 37 per cent. of all defectives, either as a cause, a complication, or an aggravation of the symptoms. The fact of frequently recurring convulsions is always an unfavourable one in regard to the future of the child. They interfere with normal growth. They disturb mental evolution, and they tend to counteract training. They cause mental irritability, render the child unmanageable, and tend markedly to shorten life. In defectives the fits vary extraordinarily in frequency, sometimes occurring only once or so every few months, and in others a great many times every day. They also vary in intensity, from slight muscular twitchings up to a prolonged general convulsion attended by coma and danger to life every time they occur.

There are four schools for epileptic children in existence, and the older children may be sent to the Industrial Colonies for Epileptics which are being established. The Commission estimate that "there are 1,000 epileptic children for whom provision would have to be made on the ground of the severity of the disease, but some of these children, it seems probable, would also have a claim upon the community on the ground of mental



defect." Wildermuth found in his experience only 17 per cent. of epileptic children were quite normal in mind, while 83 per cent. had some mental weakness. Gowers estimates that in 12½ per cent. of all the cases of epilepsy the convulsions make their appearance before the age of three, and in all cases coming on at this early age it may be assumed that there is mental defect before the period of development of the brain is completed.

Defectiveness due to or Accompanied by Gross Lesions of the Brain, such as Paralysis, Inflammations, Injuries to the Brain, Hydrocephalus, Toxins, and Syphilis

Paralysis.—Where any form of paralysis, however slight, occurs in a child, there is considerable risk of mental arrest and deterioration; but there have been instances of men of genius, as well as large numbers of men of average mind, who had a slight degree of paralysis in the arms or legs or face, from the bursting of small blood-vessels, or from other causes, in the lower and motor areas of the brain early in life; but those lesions in such cases did not affect the mental areas, and they had undergone a process of healing and were non-progressive. Those are now generally put down to the effects of toxic action on limited portions of brain *in utero* or very early in childhood. Infantile paralysis is therefore treated of in medical works apart from mental deficiency. The paralysis is often associated with epilepsy, which always gives the case a much more serious aspect. Paralytic defects are usually a teachable and easily managed class.

Inflammations.—The brain is liable to injury in its mental functions from inflammations, general rarely, commonly local, occurring early in life. Inflammations of the internal ear are very common, resulting from scarlet fever, and if they penetrate through the skull and

affect the membranes or the brain itself in that region, the mental functions may be retarded and damaged. The injury to the mind depends on the extent of such inflammations, and on their spreading upwards into the mental areas. Toxins also are now thought to cause such inflammatory change.

Injuries to the Brain.—Injuries to the brain during birth, by the use of forceps, or from any other cause, may result in mental defect. It is a curious fact, however, that artificial deformities of the head, produced by gradual pressure, as has been practised in many American tribes, and even in the South of France, even if such deformities are of a monstrous character, do not seem to affect the future intelligence of the children subjected to them. The effects of those injuries, however, tend to be healed, so that this form of mental deficiency stands as a very rare one statistically.

Hydrocephalus. — Hydrocephalus, or "water in the head," is a very common and very fatal disease of infancy. In most cases who recover there is no perceptible impairment of the intellect. In a few, however, idiocy or imbecility results. The head in those cases approaches the round form, and it will be found that the fontanelles have been late in closing. The hydrocephalic idiot is described by Ireland as being "as a rule soft, gentle, and trusting in disposition, disinclined to exertion of any sort, and somewhat awkward in movement." Hydrocephalus is sometimes associated with epilepsy and paralysis, the combination giving tc the case a very unfavourable character.

Toxins.—Various blood poisons, from without and from within, may produce effects which end in mental defectiveness in children. The most marked example of the immediate effects of a poison on the brain of an infant is seen in the disease called "Eclampsia Neonatorum." There are districts in the Western Islands where the conditions of life used to be so insanitary that

most of the children died very soon after birth from this disease, being killed at once by the poisons they inhaled. It is in such regions where we find idiocy and mental deficiency more frequent than in any other part of the country, and one cannot dissociate this fact from the extraordinarily marked insanitary condition of the hovels in which most of the inhabitants dwell. I have referred to the mental effects on the children of excess of alcohol indulged in by the mother during pregnancy. Feré's experiments on the results of subjecting incubating eggs to alcoholic poisonings proved definitely that it has the power of arresting growth and development *in utero*. Diseased rye, used as a food, has the power of producing mental defect in the children of mothers who so use it. Ill-ripened maize has been found to have the same effects. It is now established that by far the greater number of cases of delirium and convulsions at an early period of life are due to toxic causes, and both of those conditions may be followed, if severe and long continued, by mental defects, as the children who have suffered from them grow up. Various recent Italian authors attribute a considerable proportion of the mental defectiveness of children to internal or endogenous toxins, causing irritations in the growing brain cells. The poison of syphilis in an inherited form is a well-known cause of many diseases, deteriorations, malformations, and defective nutrition in children. The actual number of cases, however, in which it is the cause of amentia is small, being estimated by Tredgold at from 1 to 2 per cent., and Ireland agrees with him in this estimate. Such cases, when they occur, are usually stunted and ill-formed, with a mental deficiency which is mild in degree. At or shortly after puberty, however, such cases are said by Tredgold to undergo a remarkable change, becoming restless and troublesome, with delusions and hallucinations, sometimes with motor symptoms tending towards paralysis, convulsions,

and complete mental impairment, death resulting in time. Dr. John Thomson and Tredgold describe such cases. The occurrence of developmental general paralysis, which I first pointed out in 1877, may be classed as an example of the syphilitic poison, plus the *Bacillus paralyticans*, causing defectiveness.

General Causation of Mental Defectiveness

The universal opinion now is that the great predisposing cause of mental unsoundness with defect consists in the existence in previous generations of similar mental defects, or insanity, epilepsy, or other nervous diseases; in fact, it is hereditary in the highest degree. Tredgold found that in his cases 80 per cent. had ancestry of a "pronounced neuropathic stock." In 64 per cent. the heredity was in the form of insanity or epilepsy, while in 18 per cent. it consisted in marked family tendency to paralysis, cerebral hæmorrhages, or various neuroses and psychoses. Consanguineous marriages and continuous inbreeding are undoubtedly causes of mental defectiveness if the stock is bad, not otherwise.

The excessive use of alcohol by ancestors is admitted by all authors on the subject to be the cause next in frequency and importance to a bad heredity. Various authors put it down as existing in a percentage from 11 to 62. Tredgold's percentage was 46·5. There are two ways in which alcohol may lead to idiocy. The one, and by far the most frequent, is that of poisoned germ and sperm plasm, so that the offspring is lowered in nervous force and in its power of developing sound nerve cells. This view goes on the assumption that unfavourable personal experiences not only injure the soma, but have power to injure the germ cells. In this connection it must not be forgotten that the tendency to excess of alcohol may be, and often is, itself the result of weakened brain action which has become hereditary. In that case the injurious

effect of the alcohol is still more marked, for it finds an already weakened cell to act on. The other mode in which alcohol may produce mental defect is by means of a direct poisoning of the embryo as it grows *in utero*, through the mother's excess.

Most authors put down tuberculosis as a frequent cause of mental defect. Tredgold says, "It has a very important indirect and contributory influence," if "it is rarely the direct and sole cause." I have referred in Chapter XII. to the connection between tuberculosis and acquired mental disease. The mentally defective are extremely prone to tubercle, which is by far the most frequent cause of death in their class. It is possible that in addition to the tubercular diathesis there may be a direct toxic effect on the brain from the presence of the tubercle bacillus. It is now well recognized by physicians that this form of micro-organism may exist in a latent form which it is impossible, with our present means, to diagnose, except by using the tuberculin test, to which there are objections. Lead-poisoning, &c., in the parent may affect the embryo *in utero*, and so become the cause of a few cases of idiocy.

Consanguinity.—It is a common belief that the marriage of near relations tends to produce a weakened offspring in many ways, especially mental defects. This idea is only so far correct that if the parents are unhealthy, are weak in general constitution, or labour under any disease which is known to be hereditary, then the offspring show an aggravated condition of weakness; but if the parents are perfectly healthy, there is no reason to suppose that consanguinity between them will tend towards a weakened offspring.

Extrinsic Causes.—The causes I have referred to are what Tredgold properly calls "Intrinsic," or inherited through the germinal plasm. The chief causes which are "extrinsic" to the germinal plasm have been put down as being abnormal conditions of the mother during

pregnancy, such as worry, shock, any kind of unusual maternal impression, or disease, or bad health. Tredgold says he found one or other of those conditions present in about one-fifth of his cases, but in most of them he also found a morbid heredity, so that he is inclined to exclude them as the "sole cause of mental defect," except in very rare cases. He quotes as a strong confirmation of the effect of the mother's condition on the child the fact which he has observed, that of thirty-eight women who were insane during their pregnancies, in only about ten were the children alive and remained well in body and mind. That also has been my experience. Abnormal labour, in a few cases only, seems to cause mental defect. Injuries to the child's head in the early months of life, convulsions, epileptic or otherwise, sunstroke, and very bad conditions of life during babyhood, have been put down as causing idiocy in a few cases. Dr. Tredgold gives most interesting charts showing the effects of bad heredity in four generations where mental defect appeared. In this way he shows the hereditary relation of insanity, tuberculosis, alcohol, and syphilis.

Microscopic Pathology.—As the human brain is the greatest thing in nature, the most delicate, the most reactive, the most complicated in its machinery, and its purpose by far the highest, its development from the very earliest contact of the sperm with the germ cell is necessarily the subtlest and the most delicate process of life. If in a healthy stock this process of development goes on from start to finish in a normal way and under favourable conditions it means normal mind. Formerly when the physiology of the brain had not advanced so far as it has now, and the microscopic technique, which has revealed to us the marvellous structure of the brain, was backward as compared with its present state, the attention of pathologists in studying the brain in persons suffering from mental defect was concentrated on its outward shape, its weight, the relative development of its various

parts, and its convolutions. Now that attention is chiefly directed towards the condition of the brain cell, its shape, its appearance, its numbers, its relationship to every other cell, its blood-supply, and its packing-tissue. Instead of, in fact, looking at the whole brain and its great visible parts, we now observe its primary elements, those on whose working its function of mind, sensation, and motion absolutely depend. The cell forms the real machinery which keeps the mind working rightly. It is the essential element, everything else is subsidiary. It is the master, the others are its servants. Mental unsoundness by defect really depends on imperfect brain cells. They have not matured in a normal way. All recent examinations of the brains of the defective by the competent and skilled experts who now devote themselves to that subject prove this proposition incontestably. Such examinations of the cell, or, as it is now more properly called, the neuron, show that, instead of coming to maturity in mental defect, it has been arrested in its course, and that this arrest has been permanent. My own observations and conclusions agree with those of Dr. Tredgold when he says that the neurons of the defective are characterized by—"1. Numerical deficiency. 2. Irregular arrangement. 3. Imperfect development of individual cells (Fig. 6, p. 35); and on the whole it may be stated that the amount of change discoverable by the microscope is directly proportionate to the degree of mental deficiency present during life." I would add (4) abnormal energizing. It is only quite recently that those propositions could have been so definitely made. This work is not one where it is necessary to go into the details of the changes found in the mental neurons, but the following facts in regard to them may be taken as proved.

While all the cells may not be in an abnormal condition, most of them are so. There are found among the cells which approach the normal many embryonic

cells, called "neuroblasts," which should have been developed into neurons. The shape of the neuron is often changed; its processes, or dendrons, are few, its nucleus is changed in position and character. There is seen in it frequently too much pigment. Its numbers are few, and the arrangement of one cell or one layer of cells to another is altered from the normal. The nerve fibres, which are an essential part of the brain mechanism, are diminished, especially on the very outer surface of the convolution, and this is seen most in the frontal and parietal regions. The nerve-packing tissue(neuroglia) is changed in amount or character in something like 25 per cent of the cases. In some of those cases this change is localized. The cause of this may be that the packing-tissue is developing to compensate in bulk where the cells are deficient, to fill up, in fact, the space inside the skull-cap, so that there shall not merely be a fluid content. Most of this excess of packing-tissue is probably the result of some irritative or poisoning process which has been going on during development.

Those changes in the cells and fibres have the manifest effect, first, to diminish the output of all mental energy; second, to interfere with the co-ordinating processes of mind; third, of stopping to a large extent those associational processes of mind which are essential to its development. Flechsig and Bolton have clearly proved that in the process of development of the mental and sense areas of the brain there are "fibres of association" which project themselves from one cell centre to another as the brain grows, and so provide a means—the only means, in fact—of connecting one idea and, one sense perception with another and with the whole mental action. It is as if in the development of a telephonic or telegraphic system many of the wires between the different stations were not put in, and so the whole system was rendered almost useless.

In addition to those anatomical defects ther
doubt that there are also defects in physiologi
functional qualities whereby the cells are not n
receptive, or, as in the epileptic cases, are abn
explosive. Those anatomical and physiological
may begin *in utero* in the intrinsic cases, or may
duced in the extrinsic cases after birth.

*Relation of Congenital Defectiveness to Acquir
soundness of Mind.*—The essential and most fr
relationship of mental defect to acquired unsou
is that of the common element of heredity. Th
conditions have many analogies and relations.
form of mental disease to which it is most
adolescent unsoundness. I have elsewhere called
of Adolescent Insanity a "Postponed Idiocy," or
poned Imbecility";[1] for the secondary dementia,
so often is the ending of Adolescent Insanity,
many cases in its purely mental features and
pathological conditions to which the neurons
duced, scarcely be distinguished from idiocy or imb

Some of the cases of congenital mental defect hav
troublesome mental symptoms that in regard to m
ability, care, and treatment they require the sam
ditions as acute cases of acquired insanity, and hav
sent to ordinary mental hospitals to receive such
ment. Such cases are restless, or noisy, or destr
or violent, or sleepless, as the case may be. A
proportion of the whole class are subject to ta
special attacks of acute mental disease. Their de
brains, in short, take on maniacal, melancholic,
rose, and delusional states, and they pass through
attacks as though they had occurred in previously
brains, requiring, during the time they last, the res
of mental hospitals. This is liable to occur in e
the three classes—namely, the feeble-minded, th
becile, and the idiot. As might be expected, such

[1] *The Neuroses of Development*, by the Author, p. 118.

after the age of puberty, may be subject to the periodic recurrence of such attacks, just as is the case in adolescent insanity. At the end of such implanted attacks of acute mental disease the brains of the defectives are apt to be still further lowered mentally. Those of them who live into old age—and old age in an imbecile may come on at thirty—become still further enfeebled in mind, just as the chronic cases of insanity become more demented. I would demur to Dr. Tredgold's terminology, however, when he uses the terms "secondary dementia" as applicable to such cases, as being confusing.

The study of the causation and pathology of mental defectiveness shows clearly that it is the quality of the brain cells quite as much as their quantity and number which determine mind. This is so all through life in every tissue and organ as well as the brain. The mental functions of any cell is so illusive, so incalculable, so subtle and so different in reaction in different individuals that as yet it presents a problem that is frequently insoluble to the scientific inquirer. To test, measure, and compare it quite accurately is as yet beyond us.

CHAPTER XXVIII

DEGENERACY

THERE are conditions, bodily and mental, wh have a close relation to unsoundness of m and that often accompany it, which in rec times have been grouped together under the te "Degeneracy." This term includes so much, and is various in form and degree, that it cannot be correc defined. A man of genius may exhibit signs of generacy, the average man may have marks of presence; while the whole class of the feeble-mind imbeciles, and idiots are more or less degenerat The adolescent insane have marks of it in the lar number of the cases. Those who have attacks of act unsoundness of mind may or may not have signs degeneracy. Those marks may exist, however, withc any sort of mental peculiarity or disturbance. It w first treated of in a systematic manner by Continen medical authors, but in this country it was very exha tively treated by Dr. John McPherson in 1899 in l treatise on *Mental Affections*, Chapter VII. He says regard to the causes of degeneration that they "inclu everything which is inimical to healthy life." He begi with civilization itself. While pointing out that civili tion generally "promotes the development of a healt and vigorous race, by rendering the lot of the gr mass of the population more prosperous and toleral by improved sanitation, both of dwelling-houses and whole districts, by the draining and cultivation

unhealthy and swampy soil and by improving the drinking-water, disease is being eliminated, the general health standard is raised, and the tendency towards racial degeneracy diminishes." He further points out that "While civilization undoubtedly promotes physical and mental evolution, it remorselessly eliminates in its triumphal progress all individuals who are incapable of keeping pace with it. A large number of human beings, debilitated and unfit for the harder trials of life, are brought up only to succumb in that part of their organization—the nervous system—on which the requirements of modern life place the hardest and severest strain." As the next cause he puts deficient alimentation. "The badly nourished individual uses up more material for the supply of the tissues than his resources can replace in the blood-stream; the blood therefore becomes poor in nutritive products, and anæmia results. Anæmia chiefly affects the nervous system, for its blood supply is not only larger than any other tissue or organ of the body, but it absolutely depends for healthy function upon the amount of the blood and the quality of the blood passing through it at any given time. Extreme poverty entails not only insufficient food, but also insufficient clothing, exposure to cold, badly constructed dwellings, overcrowding, and a host of evil influences from which arise diathetic diseases, alcoholic excess, crime, and various other nervous disorders. The deplorable social condition of the lapsed masses in large towns is undoubtedly owing in great part to their precarious methods of living. It is among those classes that examples of degeneration are most common."

He then treats of alcohol and the predisposition to degeneration which its excess produces. He also points out that the syphilitic poison affects the growth and vitality of its structures. The notorious fact that this condition may be transmitted to at least one future generation is dwelt on. "Hereditarily syphilitic children

are particularly subject to diseases of the nervous system." He then treats of tuberculosis and tubercular diathesis as causes of degeneration, and points out that they have "a close connection with neuroses and with insanity." He points out that there is a "parallelism" between insanity and tuberculosis. They "occur in members of the same family either separately or, as frequently happens, combined in the same individual." He refers to the opinion of various Continental authors who look upon the tubercular diathesis as an advanced degeneration of the species. He then refers to infectious and miasmatic diseases as causes of degeneracy. He includes also rheumatism, gout, and the arthritic diathesis as causes of this condition.

Continental authors first pointed out that degeneration is often manifested by what they call "Stigmata of Degeneration." Those assume innumerable forms. They are mental and bodily, separate or combined. The most common of the bodily stigmata are congenital malformations of the bones, especially the bones of the head, which alter its shape and size, which give an abnormal expression to the face, and are thus the chief cause of what we may call "ugliness." Malformations of the hard palate are the most frequent of all the bony changes in degeneration. It may be unduly high, or it may assume a **V** shape, or a saddle shape, or it may be cleft.[1] The probable cause of this is a narrowing of the fore-part of the base of the skull to which the palate is attached. This narrowing probably means that the fore-part of the brain which is supported by and determines the development of the bones which it overlies is abnormally contracted, and all modern authors agree that this fore-part of the brain is related to mental action more closely than any other part of the organ. In many cases of degeneration we find the whole skull asymmetrical or one-sided and the teeth irregular.

[1] *Clinical Lectures on Mental Diseases*, by Author. 3 Plates, p. 588.

The bones of the thorax may also be affected in this condition, producing "pigeon-breastedness." The bones of the limbs also may be abnormal in the condition. The fingers may be too short or irregular, the hand may be of the shape which is now called neurotic. There may be supernumerary fingers or toes, and various other bone malformations. Club-foot or other such limb malformations may exist.

The organs of special sense, especially the eyes and the external ear, may also be changed from the normal. Much attention, perhaps undue attention, has been directed to the abnormalities of the external ear. The two ears may be asymmetrically placed on the head, they may be devoid of the lobes, or they may be "attached." The eye may show abnormalities in various ways. The eyeballs may be exaggerated in size, or diminished, or asymmetrical. Changes from the normal in the cornea may produce astigmatism, this being the most common of the eye abnormalities. The internal angle between the eyelids may droop, so as to give the face a "Mongolian" appearance. The lungs, the heart, the stomach, the bowels may all show "stigmata of degeneration." The tongue may be too large or small, the lips may be too protruding or small, so altering the expression of the face most unfavourably. The genito-urinary system may show various signs of degeneration. The condition of arrested development called "infantilism" may exist. The skin may be altered from its normal appearance and quality, or "mother's marks" and nævi may be common. The hair may be altered in quality or quantity, so that we may have baldness much too early, or we may have the growth of hair where it should not exist, or we may have albinism.

There is nothing in the physical signs of degeneracy that so completely and vividly mark the condition as changes in the expression of the face and eye. This

expression, when normal, is given by the normal shape of the head and face, combined with the harmonious action of the "mind-muscles" and the organs of sense, with their nervous, structural, and muscular arrangements. A normal expression should faithfully exhibit normal mind, including consciousness, intelligence, emotion, volition, attention, inhibition, imagination, moral conditions, speech, instinct, and appetite. If a man is feeling deeply, and this is not shown in the expression of the face, then his power of expression is either deficient or there exists a very unusual power of inhibition. In the former case it may be a sign of degeneracy, in the latter a sign that he is unusually sane and possesses unusual mental inhibition—the highest of all mental qualities. If he is thinking deeply this should be shown in the face or eye. If his instincts and appetites are exaggerated or perverted this also should be manifest in his expression.

The mental stigmata of degeneration are not always so easily discovered, but they are more important in regard to unsoundness of mind than even the bodily stigmata. We may have arrested, or postponed, or unrelational mental faculty. Every faculty of mind, every instinct, and every appetite may be affected. Two great medical authors, Moreau di Tours in France, and Lombroso in Italy, have pushed the doctrine of mental degeneracy so far as to include the opposite poles of idiocy and genius under the term. Those extreme views are now generally not accepted, but still there remains a large field of mental abnormality or peculiarity which comes under the term. There are certain persons in whom the intellectual faculties work in such a way that their conclusions from obvious premises are not those of the average thinking man. There are other persons who exhibit, especially in youth, miraculous and instinctive powers of calculation, so that they can multiply, say, six figures by six almost instantaneously. There are

others in whom memory is so prodigious that they can repeat accurately whole pages of books they have been reading after one perusal, this being commonly associated with a general intellectual power below par, more or less. Some persons are so unduly credulous that they are imposed upon by people who do not possess half their power of general intelligence. There are other persons in whom the "business faculty" is so deficient that they seem quite unable to carry out any simple piece of business correctly, who never realize the value of money, and who make such a mess of their affairs that they are always in trouble. There are others who have so little realization of the relative importance of things in life that they are always mistaking the small for the great, or the great for the small in importance. There are others in whom the æsthetic faculty is so over-developed, or under-developed, as the case may be, that they come under the complete domination of anything that is beautiful to the neglect of the practical in life, or have no appreciation of beauty at all. Those over-developments, under-developments, or unrelational developments may all, if they attain a certain exaggerated degree, constitute degeneracy. Whether this degeneracy means, or necessarily leads towards technical unsoundness of mind depends on the degree to which it exists, on the innate stability of the brain cells, and on the conditions to which they are subjected during life, especially its developmental period.

There is another class of mental degenerates who are subject to morbid impulses, and imperative ideas, to obsessions, to foolishly superstitious ideas, or who exhibit total want of conscience. Those conditions may lead to criminal actions, so that such persons constitute a danger to society. Mental hypersensitiveness may be a sign of degeneracy, and so may the absence of sensitiveness. Cruelty may be a sign of degeneracy, especially where it takes the form of torturing

human beings and animals, for the sake of the pleasure it gives the torturer. There are other persons who have such a craze for lower animals, or such a blind and unreasoning objection to their being trained, or killed, or eaten, or shot, or vivisected, for the good or necessities of humanity, that they thus show their degeneracy. There are a certain class of degenerates who constitute a considerable part of our criminal classes, such being usually found in the lower quarters of our large cities. As opposed to the morbid impulses, we meet with as signs of degeneracy morbid indecisions. I once had a patient who took an hour to decide which stocking he would put on first. Others have morbid fears (phobias) where there is no occasion for them. Finally, the instincts and appetites may be so exaggerated and perverted, or absent, that they are thereby proved to be degenerates. In some of those persons the most primitive of all the instincts, the love of life, is completely absent, and they do not take proper means to protect or defend it. Some have tendencies to steal, to set things on fire, while others have sexual desires either in excess, or completely absent or perverted. Those are all mental stigmata of degeneracy, which are reckoned mental diseases when they affect the conduct of life in a marked way.

CHAPTER XXIX

THE BORDERLAND—THE MENTAL SYMPTOMS AND ACCOMPANIMENTS OF BODILY DISEASES

THERE are a very large number of cases of mental disturbance which are very slight and not decided or specific in their character, and which may be described as on the "borderland." Sound and unsound mind pass into each other in most cases in a gradual way. There is no line of demarcation; it is like the passing of light into darkness. There is a twilight which cannot be described as either the one or the other. It is one of the most difficult problems for the physician and the friends of persons in this borderland to ascertain the real facts, to determine their significance, to estimate the amount of deviation from the normal, and, especially, to take measures for early treatment and the prevention of further progress and dangers. There can be no question that a very large proportion of suicides occur in the borderland, just when the symptoms are passing into actual mental unsoundness. This stage is also the one where suitable care and treatment is most effective. Many a man and woman if rightly treated in the borderland would go no further, and never be reckoned as having been mentally unsound at all. The symptoms of that condition are often undefinable, variable, obscure, elusive, and debatable. While many patients are conscious that something is going wrong mentally, yet they have a great and natural aversion to admit this or to

take measures for proper treatment. The reproach and the stigma connected in the popular mind with mental disease are accountable for much of this fatal silence about its early symptoms and their consequent neglect.

The duration of the borderland stage of mental disturbance varies enormously in different cases. One man, by reason of innate brain instability, may be in this condition almost all his life; another may only be so whenever he experiences any severe stress, mental or bodily. In another case the mental condition only becomes disturbed when there are violent mental cataclysms or a prolonged condition of bodily or nervous exhaustion, or during the presence of some bodily disease accompanied by blood-poisoning. The real difficulty consists in the true interpretation of the symptoms present, and the differentiation of what is pathological from what is purely physiological. The normal brain reactions of sorrow and depression as the result of bad news, or of elevation when there are causes for joy, must not be confounded with the depression and the elevation of the borderland of mental unsoundness. In certain people it is a bad sign when they take to analysing their own mental condition and feelings, but then this self-questioning is the normal state of many sound-minded persons.

The following symptoms may be put down as the common indications of the borderland :—

The bodily conditions of prolonged sleeplessness, of serious and continued loss of body weight, of general or specially intractable disturbances in function of the great organs of digestion, action of the bowels, liver, kidneys, &c., accompanied by nervousness. When those occur in persons of what we now call the "psychopathic" or neurotic or hysterical constitution or temperament, they are not to be neglected, and they should be regarded with suspicion at all events. In regard to the mental symptoms of the borderland, we always take

account of the fact that those symptoms are of much more significance in the psychopathic than in the normal person. The conditions of what we can only describe as "unsettledness," of a conscious feeling of nervousness, of want of power of continuous application to usual occupations, and of a feeling of a change in the mental working, of persistent introspection or gloomy retrospection are not to be too lightly regarded. It is a grave symptom, too, when the love of life, that most radical of all the instincts of living beings, becomes in any way diminished. The man or woman to whom life is not sweet should always look to his mental condition, and if this state occurs under the age of forty-five it is a specially grave symptom. The person, too, who is losing his self-control of thought, action, and feeling to any marked degree should not neglect this symptom — mental inhibition being the highest power in man. A prolonged condition of want of conscious energy, when work ceases to be a pleasure, where there is "no go" in the man, is a symptom to be taken notice of. The opposite condition of causeless impulsive action and continuous output of energy without sufficient cause is also sometimes suspicious. In persons who have had normal or extra good manners in health, if the usual social observances and conventions become markedly irksome, and are departed from it is a bad sign. I have known men in whom not going to church or to dinner-parties, which they previously had enjoyed, or inattention to dress and outward appearance, or the ceasing to be well-groomed, or even carelessness in recognising their acquaintances, or taking off their hats to lady friends, were the first signs of an attack of mental unsoundness. I knew one man in whom the shaving of his beard which he had worn for many years was the first sign of an attack of mental unsoundness. I knew another in whom the change from a necktie of sober hue to one of a brilliant tint

was the first, but sure, sign of a recurrence of mental excitement to which he was subject. Over-sensitiveness and over-reaction of the brain and mind are common enough preludes to attacks of mental depression. A marked change of disposition or character is always a thing to be noted. If a young man of modest character and rather retiring disposition suddenly makes a serious proposal of marriage to a young lady with whom he is only casually acquainted, that even may be a suspicious circumstance as to his mental soundness. I have known it to be the first symptom of an attack of brain excitement. There is a certain hyper-conscientiousness, a sort of hyperæsthesia of the conscience, that I have known to show itself in persons on the borderland.

When a man whose mind and brain are of rather a dull humdrum character, good perhaps at business, but in no way brilliant, suddenly develops a faculty for sparkling conversation, for writing sentimental letters, or for pushing himself into positions for which he has hitherto been regarded as unfitted, it may be a symptom that his mind is passing into the borderland. I have known several instances of economical, careful people developing an exaggerated economy in small things, and this was the prelude to a condition of pathological miserliness where necessary food, clothes, fire, and service were begrudged. I have often known, especially in the case of young people, failures in the virtues of honesty, modesty, thrift, chastity, and even seemliness of apparel to be, not of the nature of vices, but symptoms that their mental condition was giving way. I have known an attack of scolding in a woman to be a symptom of mental unsoundness. There is a form of mental action which we call obsession, that is always more or less on the borderland. If a woman takes the idea that her house or her person are not clean, when there is no real ground for this notion, or that her children have been infected with some disease without really sufficient

cause, or that she herself is the victim of some poison in the blood, or that she must do certain acts which her friends see no occasion for in the world, such as, for fear of burglars, taking to putting her silver under her bed every night—all these things I have known to indicate mild degrees of mental unsoundness.

There is one symptom not uncommon in the borderland cases, and that is that the patient has a premonition of impending evil which he cannot get rid of, do what he will. He has a feeling of organic ill-being about him which he cannot define. Many people have this, however, when they are in the least run down from any cause, and in such cases it means little, but in other instances it is a real precursor of a mental breakdown.

Even an exaggeration of the higher spiritual instincts I have known to be suspicious in certain persons of a neurotic constitution. Constantly to attend religious services out of season, to crave for visits from spiritual advisers, to have morbid desires towards a confession of sins, I have often known to be the accompaniments of the borderland of mental unsoundness in persons who were the "salt of the earth." Most persons who are worth anything in the world have marked individual characteristics. It is sometimes a sign of a pathological mental change when the peculiarities of such persons become unduly accentuated, when perhaps a cautious person becomes foolishly suspicious, when a bold man becomes ridiculously rash, when a vain man becomes ostentatious to an absurd degree, or when an affectionate man becomes comically uxorious. I have heard a lady tell me that she had the feeling of what she described as a "nervous tension" which she could not explain, but which she felt was abnormal, and, as a matter of fact, preceded by several months an attack of unsoundness of mind.

Mental Symptoms and Accompaniments of Bodily Diseases

There are few bodily diseases but what are accompanied by changes more or less in the mental condition and working. If such mental changes are unduly marked, they may constitute a sort of borderland of mental unsoundness. Family doctors attending their patients for ordinary complaints constantly see, if they are observant of such things, such mental accompaniments of the bodily complaints as restlessness, loss of energy, lack of interest in things, low spirits, rambling, disconnected talk, feelings of extreme lassitude, no enjoyment in anything, irritability, temper, jealousy, want of concentration of mind, light-headedness, difficulty to be pleased, or excitability. Those, if they do not go to much excess, may be just the ordinary effects on the brain action of high temperature, mild blood-poisoning, or disturbances of action of the great organs of the body.

It has been long known that certain bodily diseases and disorders are apt to have special mental symptoms and accompaniments. Disorders of the stomach cause mental irritability with undue frequency; certain heart diseases are accompanied by loss of courage and morbid fears; certain lung affections cause confusion of mind; consumption is often accompanied by either an undue feeling of well-being and hopefulness, or suspiciousness and unsociability. Diseases which prevent a sufficient amount of oxygen being supplied to the blood, such as bronchitis with heart disease, will often cause confusion or torpor of mind. The continued infectious fevers has each its own particular kind of delirium. I found at the children's hospital in Edinburgh that the delirious conditions of the sick children were commonly a sort of agreeable delirium, but that after severe burns the delirium was apt to be wild and full of dread.

Innate Borderland Symptoms.—There exist among

mankind many persons with such marked peculiarities and divergences from the normal and the conventional that their mental state must be put down as near the borderland of mental unsoundness, though those conditions have little to do with what could be called disease. Without those persons fiction would distinctly lose much of its flavour, and even biography would be dull. Scott furnishes a gallery of them—Dominie Sampson, Meg Merrilees, Mause Headrigg, Goose Gibbie, Madge Wildfire, and Norna of the Fitful Head. The old Scottish "natural" was not always half-witted or feeble-minded all along the line, but often a person well-developed mentally in one direction but deficient in others. A psychological analysis of such persons would fill a volume. The intellect may be sharp up to extreme cunning, but altogether unfit to cope with simple reasoning problems. The self-control may be normal in some areas of conduct, but quite wanting in others. The emotional nature may be tender on some lines, but without any bowels of compassion in others. There may be no elements of moral sense or conscience present. The conduct may be quite automatic and unguided by the motives that influence ordinary humanity. But of all of them it may be said that a world composed of such people could not go on. Mental evolution has failed in either making them like their social environment or adaptable to it. Their mental and conduct reactions to environment are not those of the rest of the world, but peculiar to each individual among themselves.

Treatment.—The right treatment and management of the borderland cases is almost always a matter of some difficulty, and often of much responsibility, especially in those cases where the patient does not himself realize that there is anything the matter with him. Where there is excitement and elevation or obsession, or failures of mental control, and where there is a delusional tendency with suspicion, this is especially apt to be the case. The

first thing to be thought about in all cases is wh
there are any departures from bodily health, whethe
of the great organs of the body are acting badly, wh
the blood is being subjected to any toxic influence,
wanting in any of its normal constituents. The ge
nourishment of the whole body, too, needs to be care
inquired into. If there are any such departures fro
normal, medical or other means require to be tak
restore the health. Many neurotic persons are so
stituted in their brain action that even a little failu
health, in the ways I have indicated, makes a differ
to their mental working, and in a considerable nu
they respond to proper treatment and soon regain
usual mental condition. In many of them suitable
a change, or the use of nerve tonics is especially he
to restore the right working of mind. This is espec
the case in those who have lost in body weigh
are in any way neurasthenic.

One of the urgent questions, as in developed m
unsoundness, is always this—shall the patient have
and in what form can rest be applied in the parti
case? The best rest for the brain and mind in s
cases is to put the muscles into exercise and to ch
the work. Should the patient be put to bed or mad
live in the fresh air with a fair amount of exerc
Should he undergo a course of massage with over-fee
or not? Massage with bed treatment is a most valu
agent in many of the neurasthenic, thin, and really
cases, but in my experience it is sometimes a dange
remedy. In cases of commencing depression and letha
where you want to take the man "out of himself," w
he needs the stimulus of slow travel, change, sunsh
and other kind of air, the necessary isolation throw
too much "into himself," and I have seen many pati
subjected to this treatment pass into actual melanch
Speaking generally, it is almost always well to ha
change of environment for such patients. It

without saying that if the patient has been overworked, has led a too monotonous life, has been subjected to causes of exhaustion and irritability at home, such as the nursing of relations, or business worries, that a change should be got. Where there is a tendency to depression the question of the greatest anxiety is this—Is there any chance of such a patient, whose love of life, perhaps, is being diminished, passing still further in the same direction and becoming suicidal? All medical men know that this risk may occur quite suddenly, and may exist for one part of the twenty-four hours and not at all during the rest of the day. It is so terrible a contingency, and it is so obviously undesirable to talk to the patient about this particular feeling, that its existence is most difficult to ascertain. Still, it should never be lost sight of.

It often enough happens that the incompatibility of temper and disposition of relations who live with each other is the cause of mental strain, and this is a most delicate matter to go into. I have often known devoted daughters, anxious mothers, and dutiful wives driven to the verge of mental unsoundness by this incompatibility when the person who was its cause was totally unconscious of the state of matters. But for a time such persons must, at all hazards, be separated. Among religious people the clergyman is naturally called in to many cases on the borderland, and is often invaluable, but I am bound to say that he needs to be a very sensible as well as a religious man, otherwise he may do more harm than good by accentuating the symptoms. It is a curious fact that many people will at once send for their family doctor if they have an ache or a pain, a skin irritation or an indigestion, but who will not send for him if they have any mental symptom. They either think it of no importance or that they are themselves to blame for it and that by an act of will on their own part they can get rid of it; or they are so ashamed of it that they are disinclined to

mention it to anybody. I know no circumstances v
it pays better to have a doctor's advice, if he know
business, than where there is any trace of the symp
that I have described as characterizing the borderlar

Treatment of Borderland and Early Cases in G
Hospitals.—There has lately been an important r
ment in this country and elsewhere to provide su
treatment and accommodation for incipient and bo
land mental disturbances in the wards of our great
pitals for the poor. I think the time is not far d
when, added to the medical arrangements of all our
general hospitals, there will be such wards or annex
the treatment of the mind as well as the body.
will not take the place of our mental hospitals fo
more confirmed and the acute cases. The old preju
against the mental hospital are so strong that the
probably take a long time to die out. Ten men or w
suffering from the early stages of mental unsoun
would voluntarily go to an ordinary hospital for one
would go to a special mental hospital for treatment.

Habit.—The brain is emphatically an organ of
and is liable, when it takes on bad habits, such as
lessness, undue reactiveness, and a hundred other
bordering on the morbid, to get into a "pathol
habit." The longer this lasts the more difficult it
get rid of, and therefore we talk of "breaking the h
of sleeplessness, &c. Going for a short time to a
pital would often break the irksome routine of hom
and break many bad brain habits.

CHAPTER XXX

SPEECH AND UNSOUNDNESS OF MIND—COUSINSHIP OF MENTAL UNSOUNDNESS TO OTHER BRAIN AND NERVOUS DISORDERS—THE NERVOUS HISTORY OF A PARISH

Serious Mental Results from Small Causes

SPEECH is the truest physical index and expression of mind. Without speech the mind of man could never have evolved from concrete to abstract ideas. It naturally happens that in unsoundness of mind, of almost every kind, speech is more or less affected. It may suffer in various and distinct ways. In brain disease, if a certain convolution (Broca's) in the anterior portion of the left hemisphere of the brain is affected, the patient cannot express either general ideas or the correct name of anything by means of speech. This is called "Aphasia," of which there are two great varieties—the motor and the sensory. In the sensory form ("Amnesia") the patient is unable to understand the meaning of written words. In the motor form he understands the meaning of what is written but cannot express his ideas in words. There is a sub-variety in which the patient cannot write, and that is called "Agraphia." There always is mental unsoundness in the amnesic variety, but in some of the motor cases the mental faculties are not much, if at all, affected. In most ordinary gross diseases of the brain the speech is affected by a thickness and want of crispness, more

or less, as well as the mind, except the lesion is very circumscribed indeed, and is confined to the motor areas of the brain. In general paralysis, as we have seen, the speech is always affected, and this feature forms the best aid to the diagnosis of the disease. In the acuter and more delirious forms of mental unsoundness the words are often not clearly articulated, the speech is incoherent, because the ideas are incoherent. The sentences are often not completed. In secondary dementia the patient is apt to talk rather slowly, and the articulation wants crispness, intonation, and force. In many cases of depression and delusion the speech is low and slow, and in other cases, the patients do not speak at all. In most cases of congenital imbecility the speech is poor for want of sufficient words and ideas being evolved from the brain, and the articulation is mostly lacking in pleasant intonation and in force. In the worst congenital cases the speech is infantile, or words are repeated in a silly way. In idiocy the speech is either completely or largely absent.

Speech is, in short, one of the best indices not only of sanity or insanity, but of mental force. A highly evolved language means a highly evolved race. Savages use only words in hundreds, civilized men in hundreds of thousands. Humanity has always recognized that the orator is likely to exhibit a general mental ability. Most of the leaders of mankind have been good speakers. Oratory is essential for a modern political leader, but, on the other hand, the great writers have been rather conspicuous for their deficiency in ready and effective speech, and some of them, like Goldsmith—

> "wrote like an angel
> But talked like poor Poll."

Cousinship of Mental Unsoundness to other Brain and Nervous Diseases and Defects.—Unsoundness of mind is by heredity and, in some respects, by its essential nature own brother or cousin to many other disorders of the

brain and nerves. It is not a unique or solitary thing in nature. It is a close blood relation, for instance, to epilepsy, St. Vitus' Dance, hysteria, dipsomania, deaf-dumbness, certain emotional perversions, impulsiveness, tendencies to law-breaking, kleptomania, pyromania, all the "phobias," instinctive criminality, perverted sexual instincts, and frothy religionism. It is also allied hereditarily to certain kinds of convulsions, paralysis and neuralgias, to backwardness of speech, to arrested body growth (dwarfishness), to marked departures from physiological bodily ideals (ugliness), to night terrors, to hydrocephalus, to asthma, to diabetes, to premature senility, and even to a tendency to consumption in adolescence.

The more distant cousins of unsoundness of mind may be put down as being in the first place all sorts of "monstrosities" and malformations from birth, such as acephaly, hare-lip, cleft palate, deformed palate, spina bifida, talipes, &c., then also night terrors, infantile paralysis, marked backwardness of speech, certain eye defects, liability to delirium in children at "non-febrile" temperatures, deaf-dumbness, St. Vitus' Dance, somnambulism, megrim, &c.

It by no means follows that persons suffering from any of those conditions shall necessarily be or become of unsound mind. It simply means that all those states, in common with mental unsoundness, are due to brain defects, and that the brain has a solidarity of structure and action which brings them into a certain relationship to each other. It may be said that those morbid conditions have this other connection with unsoundness of mind, that most of them appear during the growing or developmental period of the brain—that is, from conception to twenty-five—and that, like the form of mental unsoundness which I have called "Adolescent Insanity," and which is now called in Germany "Dementia Praecox," they are essentially developmental. Every one of those states, in my opinion, means some kind of

defective evolution, and they place their subjects among the "unfit." They all mean that procreation of the species should not take place in their subjects if a good race is to be kept up. In the case of all of them science would point to future legislation which would render such procreation illegal or impossible. This, if it were practicable—and most people as yet would say that it was not—would be the quickest and most effective measure of prevention and extinction of all nervous disease that could possibly be adopted. As a matter of fact, at present humanity, modern sentiment, ethics, the law, and the Christian religion have determined most elaborate and costly means for keeping many persons suffering from those defects and diseases alive, and fit to procreate their kind, so going in the face of Nature's law of the elimination of the unfit, and thereby the betterment and further evolution of the race. But in the state of Indiana and other American states at the present time surgical measures are taken by which the worst class of criminals are sterilized. Meantime we are all agreed on the adoption of every practicable and known hygienic measure to lessen, mitigate, antagonize, and prevent all such nervous defects and diseases.

Objections.—Many persons, scientific and unscientific, will no doubt say, "You are advocating an entirely impracticable and cruel procedure. You have no certain data for your recommendations, and if you had, moral and legal considerations come in to debar your action." They will ask, "Is it not possible for highly gifted individuals to come out of such a stock as you are describing? Might not the world thereby even lose a genius in every generation, and one such genius may be worth 10,000 ordinary men, and his ideas counterbalance 10,000 crimes? The science of the future may devise means by which such a stock can be restored to the normal. Would you not by the measures you are proposing, if logically and relentlessly carried out, tend to

reduce mankind to a congeries of humdrum persons, all of the same pattern like a hive of bees? Does not individuality, in many cases, go with remarkable eccentricity? Is there any conceivable means to define the degrees in which mere 'nervousnesses' can be distinguished from the psychoses? You would tend to brutalize or materialize humanity, and to lower the idea of the sacredness of human life and liberty—an idea which it has taken ages of civilization to build up." I am well aware of those difficulties, but in all things it is well to have the ideal in view, and the ideal of the modern scientist is to have a humanity free from disease and defect, especially mental defects, which constitute an imminent danger, especially in modern society. To dwellers in large cities the strenuousness and excitement of modern life, the very social air of such advanced countries as America, undoubtedly tend to increase nervous instability. Such countries have many advantages, but they would have more still if all their inhabitants were fairly well developed and stable physically and nervously, with plenty of bone and muscle, fat and bulk, able to reason well and always to apply reason to the conduct of their lives.

Nothing is more common than to hear the boast that "our family at least is quite free from insanity." It might make the world more pitiful and tolerant, and a little humbler, if the plain fact were more fully realized that few families indeed are free from either mental unsoundness or those brothers and cousins of the disease. It is certain that if two persons, each labouring under one of those cousin-diseases of unsoundness of mind, marry and have children, they may be transmuted into unsoundness of mind in the descendants.

The Nervous Family History of a Parish.—I once investigated the family histories of three generations of people, consisting of eighty-three families, which made up the greater part of the population of a country

parish in one of the Orkney Islands. It so happened that I knew individually almost all the members of this group more or less. I made no selection, but where the family and its history were unknown to me I omitted it. They were all country people, decent folks for the most part, hard working, thrifty, few very poor, healthily money-loving, with scarcely any drunkenness among them. Vice in its grossest forms was unknown, but the parish was an isolated one, and inter-marriage had been very common indeed among them since the Norse invasion of the district a thousand years before, for most of them were of Norse descent. Possibly there was a tincture among them of the blood of the old Picts, who preceded the Norsemen in the occupation of the land, because it was the most inland parish of the main island, where the Pictish population would naturally be driven; and it is almost inconceivable that the incoming Norsemen, who did not always bring their families with them, would not inter-marry with some of the young Pictish women. The size, the complexion, the shape and size of the head, and the expression of face in some individuals, all point to a slight tincture of another race than the Scandinavian. Of bodily degeneration little could be seen. At kirk and market the people looked quite up to the average of the Scottish people. I included in my investigation only four conditions—idiocy, congenital imbecility, epilepsy, and ordinary unsoundness of mind. I took advantage of my intimate knowledge of the people to count in the cases of mild weakness of mind, and mild attacks of depression of mind, neither of which would have been counted unsoundness of mind at all by an unscientific observer. I also included some cases of very marked eccentricity and asocial conditions. Those are all brain defects, as truly as the most acute case of "raving madness." The result was this—that of those eighty-three families, in forty-one of them one or other

of those four marked brain disorders had occurred. That is, in half the families there had been examples of mental and brain defect in three generations. The families, in which one of the diseases I have mentioned had occurred, had, in most cases, one or more of the others. It is almost impossible in most families to go back further than three or four generations, except in those of the wealthy and titled classes, in old families, and especially in the Royal Families of Europe. Dr. Ireland made a careful investigation into the mental history of those Royal Families, with the result that an extraordinary amount of mental unsoundness was proved to exist. Most of them, of course, have inter-bred very closely for many hundreds of years. I find that the closer heredity is studied in its relation to mental disease, the larger the field becomes for future efforts at eradication, prevention, and counteraction, a branch of science that has as yet been almost over-looked, with the small exception of Sir F. Galton's "Society for the Study and Practice of Eugenics." At the present time Dr. Karl Pearson and Dr. John McPherson are endeavouring to work out, by means of an absolutely scientific "biometric" method of statistics, the liability to mental and nervous disease in our general population, but as yet few of the results of their labours have been published.

Great Mental Results from Small Causes.—There is a certain brain quality which I have described as a tendency to propagation, diffusion, and extension of action, and which Cajal has called the "Law of Avalanche," through which over-action and irritations in the brain tend to pass from one centre to another and to affect functions different from those originally in action. This mode of action sometimes becomes accentuated as it progresses, as a falling body does through the law of gravitation. If this tendency is present in any brain, we may have very se[illegible]ive results from a

very small source of irritation. Thus we may have what we now call a general mental explosion, or an attack of mania, or a convulsion or severe neuralgia, resulting from a mere emotional disturbance, if the brain is hereditarily unstable in this way. We have long known that this law applies to motor convulsions resulting from irritations in the cortex of the brain. A very small apoplexy or the irritation of a minute spiculum of bone extending inward on the brain cortex, from the skull, will set up, first, slight and localized convulsions, which may soon become general convulsions of the whole body attended by unconsciousness. This law is always kept in mind by the mental physician to explain great results from what appear to be very slight causes. I knew a man who committed suicide suddenly and unexpectedly, who had been quite well the previous day, and in whom we found a small spiculum of bone like a toothpick that had projected into the mental area of the brain and had caused a sudden change in his mental state—in fact, had set up a sudden "mental epilepsy."

CHAPTER XXXI

GENERAL PRINCIPLES OF DIAGNOSIS, MANAGEMENT, AND TREATMENT

DIAGNOSIS

THE first thing we have to do in nearly all cases of mental unsoundness is to persuade the patient in some way that he is ill, that his brain is working badly, and that he needs treatment. The doctor and the relations have to ask themselves certain questions in most cases. What is the probable cause of the malady? Is the origin of the disease from within or from without him? Is it predisposed to by a bad heredity? And what is the probable strength of that heredity? Is it connected with any period or crises of life? Are there more causes than one in operation? We have to get information regarding the man's temperament; regarding the diseases to which he and his relatives have been subject. The examination of the patient nearly always requires tact, time, delicacy of feeling, and thoroughness. We have to ask especially, Is there any danger to the man's life or to those of others? or any risk to his reputation and position in the world?

To make out the mental symptoms, in any case, we must, as a general rule, analyze the mind, faculty by faculty, instinct by instinct, appetite by appetite. Is the intellectual condition so affected that the reasoning

power is not normal? Is the memory impaired? Is the power of will, of initiative, of self-action in any way changed from the normal? Is there a condition of general confusion or lethargy present? Do any suicidal tendencies exist? Those purely mental symptoms may be marked or extremely slight and subtle in character. Every word, look, and act must be carefully scrutinized. Then we must inquire into the condition of the instincts of the love of life, of reproduction, of social desire, and of the various bodily appetites.

In examining into the bodily symptoms we first compare the condition present at the time with the man's former state. Has pain, or paræsthesia, or loss of sensibility been present at any time? Has there been any motor symptoms in the shape of convulsions, twitchings, or paralysis? Has there been a general falling off in body weight? The functions of the different great organs require to be gone into one by one, especially those of the stomach and bowels. The thyroid gland must not be forgotten. In many cases the blood and the cerebro-spinal fluid have to be examined. The menstrual condition in women has to be inquired into. The expression of the face and eye is most important as indicating either sanity or mental unsoundness. The appetites and tastes for food and drink, &c., have to be looked to; the temperature must not be forgotten. The symptoms of the various toxæmias need to be kept in mind. In short, the whole man, body and mind, needs analytic consideration.

There are certain conditions which are like mental unsoundness, and may indeed be of the same nature scientifically, but they must not be confounded with it in practical diagnosis. The chief of those are the delirium of fevers, the mental disturbances of simple and cerebro-spinal meningitis, injuries to the head, great mental shocks, emotional paroxysms, hysterics, uræmic conditions, drunkenness, and the effects of drugs.

Treatment.—When treatment and management come to be determined it is always well to place some one in a position of direct responsibility for the patient, a relation or a nurse probably. But the question of the proper nurse is not always an easy one. Good and well-trained mental nurses are now available in every large city. Is home, or lodgings, or a mental hospital the best thing for the patient? are questions of great difficulty and responsibility in most cases. The two great things to be kept in mind are the life and the recovery of the patient. No sentimental feeling or prejudice must stand in the way of giving him the best chance for both. If the means of the patient are small, so that abundance of nursing and medical attendance cannot be provided, then beyond any doubt a good mental hospital is in most cases indicated. We shall, I hope, soon have mental wards in connection with our general hospitals, which will greatly help us to solve some of our present initial difficulties. Great care must be taken that specific instructions are given and carried out in regard to suitable diet. A combination of milk and eggs in the shape of liquid custards can frequently be given when everything else is refused. Very precise instructions have to be given as to the administration of the medicines ordered, especially when strong sedatives are prescribed. I have had very good nurses indeed make serious mistakes in regard to the doses and the times of administration. Whether the patient is to take much or little exercise or much or little rest needs to be specifically laid down. The occupations and amusements need to be provided for. In the treatment of certain mental cases a medical alertness and resource, provision for emergencies of all sorts, and a knowledge of human nature are needed in a way that are seldom required in any other disease. The whole conditioning of a patient's life must be provided for. Human nature is not simple, and mental disease affects human nature to its deepest recesses. We often have

to experiment with different drugs and courses of treatment.

There is one class of medicine which both doctor and nurse are tempted, in many cases, to use in excess—to abuse, in fact. That is the class of hypnotics, sedatives, and quieters of noise and restlessness. The effect of those medicines is sometimes so apparently good ; they get over most distressing symptoms; they prevent scenes; the patient sleeps and is quiet when he has before been suffering from insomnia and disquiet of all kinds. But it must be honestly and carefully realized that those symptoms of apparent improvement do not necessarily make for ultimate recovery. They may in some cases, in fact, only be masking the disease ; they may be setting up a bad habit in the patient's brain ; they may be interfering with the nutrition of the body and the brain, with natural appetite, and with the restoration of natural sleep. But, on the other hand, they, in many cases, directly produce brain improvement. The use of such medicines in certain cases to arrest or modify urgent symptoms is quite legitimate, but it must be done with care and ever under medical supervision. No nurse ought to take the responsibility of giving such medicines except under direct medical orders. It is a safe principle to lay down that such drugs should only be regarded as one part of the treatment, and not, in most cases, the most important part. In old times our one sheet-anchor to produce sleep was opium ; now we have half a dozen new chemical compounds which are better hypnotics, but every one of which has its special dangers. Here I would earnestly counsel every man or woman who is afflicted with insomnia to be careful as to the use of hypnotics, and on no account to become dependent upon them for any length of time. I know the temptation is, in many cases, almost irresistible—the present relief is so delightful—but the real dangers and risks must not be overlooked.

The effects which we may legitimately aim at and hope

for in the treatment of mental unsoundness by the drugs I have mentioned are: 1. To cut short an attack in its first stages. 2. To re-establish the sleep habit of the brain. 3. To tide over short acute attacks till nature brings on recovery. 4. To give needed sleep to relatives and nurses in some cases. 5. To subdue feverish and exhaustive symptoms, and so save the patient's strength and it may be his life. The particular drug to be used must always be selected by the doctor in attendance. Morphia, sulphonal, trional, veronal, the bromides, cannabis indica, paraldehyde, chloral, or combinations of those are the chief drugs from which we can take our choice. It may be laid down as a general principle that it is far better to enable the patient to bear his mental pain and the effects of his sleeplessness by improving his general nervous tone than to produce sleep and quiet by drugs.

It must never be forgotten that nearly all cases of mental unsoundness need moral and mental treatment as well as bodily and drug treatment. The effect of mind on mind, of emotion on emotion, of the will of one man on that of another, must never be lost sight of. The mere moral effect of the right sort of nurse is an asset of incalculable importance in many cases. Under this heading comes the treatment of what is called suggestion and expectancy. There are many cases of functional nervous disease of all kinds and some of mental unsoundness of the milder types, where, if the patient can be got to believe that he is going to recover, and that the means taken for his recovery are the right ones, it has a marvellous effect in producing the expected cure. In all medical practice this principle applies, but especially in mental and nervous diseases. Under this heading comes the use of hypnotism. The production of this abnormal condition of brain with the partial suspension of consciousness which it implies —the production of a half-sleep — has been tried in

mental unsoundness and in many nervous diseases of late years in all civilized countries. Beyond any question it has the power of doing good in some cases, but there is little doubt that we have not arrived at that stage of knowledge that we can prescribe it in any given case with confidence. It is also in some cases a dangerous remedy : it lends itself to quackery of all sorts. It is one of those mysterious things that excite the imagination and the credulity of weak-minded people unduly. It should only be used by men of great experience in its application, who have an intense psychological honesty, and who are men of a sound judgment. *Psychotherapy* is the title of Münsterberg's latest book, and he is a man of a very original mind, and has done enormous scientific work in this region of psychology. But he expressly exempts cases of insanity from those in which his methods are followed by successful results. Borderland patients with obsessions and imperative ideas, where the reasoning power is to a large extent intact, but who need strengthening in their volition and common sense, are chiefly thus treated by Münsterberg. His success with some of those was very surprising and encouraging. *The Psychic Treatment of Nervous Disorders* is the title of Dr. Paul Dubois' delightful and suggestive book on this subject. His last chapter is a most refreshing summary of an honest and shrewd physician's conclusions and results, after twenty years' experience of the constant use of mental therapeutics. He fully realizes their limits as well as their power.

CHAPTER XXXII

MENTAL HOSPITALS, TRAINING SCHOOLS FOR DEFECTIVES, AND EPILEPTIC COLONIES. THE SUPERVISION OF THE DEFECTIVE CLASS

WITH the exception of a small hospital in Jerusalem, the Mussulmans were the first to build asylums for the mentally unsound. Upsala followed in 1305. Spain built six in the fifteenth century. Bethlem Hospital, founded in 1247 as a Priory, and used for the treatment of the insane in 1403, was the first mental hospital in Great Britain. Its contracted name, "Bedlam," has stood, unfortunately, in the popular mind as the cognomen for asylums for the insane ever since. "Tom o' Bedlam" was the popular name for an insane person long before Shakespeare's time and long afterwards. In Scotland, towards the end of the eighteenth century, and in England at the same time, but to a less extent, a wave of philanthropic feeling in regard to the unsound of mind was the means of establishing many mental hospitals—the "Royal" asylums, built on fairly sound principles. The "Lunacy" legislation of the middle of the nineteenth century has provided an abundant supply of such hospitals in every county and large city of the United Kingdom. Various well-equipped hospitals and training schools for defectives have also been established, partly by philanthropic effort and partly under legislative sanction. The latest provision is that for epileptics, which

has taken the form of "colonies" in the country where plenty of land could be obtained, so that the patients may have the means of out-door life and occupation. The principles of management and treatment in all those establishments have been a slow process of evolution from the "madhouse" of the eighteenth century into the scientific hospital of to-day. The modern mental hospital is a totally different institution from the old "madhouse." It is placed in beautiful surroundings, is a highly organized and well-equipped medical institution, is often most attractive in its arrangements outside and in, and is, in fact, as much a hospital, for the treatment of its own special class of cases, as the fever hospital, the neurological hospital, and the sanatorium for consumption are for theirs. The best mental hospitals are, in their special wards, villas, &c., specially adapted in each part for different classes of the inmates in different mental conditions. They are, in fact, "hospital-homes" whose rooms and decorations are specially fitted to antagonize gloom. The mental hospital is now one of the recognized parts of our complicated modern civilization. It costs much money, but it confers great benefits.

During the last ten years a further idea for the treatment of certain of the incipient and the curable cases of acute mental unsoundness has been taking possession of the medical mind, and has been partially carried into effect. It is likely, in some form or other, to be applied as supplementary to the regular hospitals. It arose in this way. In old times the great hospitals, such as Guy's, and the Royal Edinburgh Infirmary, had special accommodation for acutely "mad" people, in the shape of cells, usually in the basement of the building. Those were gradually disused, as being unsuitable for their purpose, but the medical idea at the root of those old cells has been revived. The recent study of mental disease on medical and scientific lines have brought many doctors to the conclusion that certain of the cases, which are

incipient or acute and of short duration, might well be treated in special wards or departments of general hospitals, with a view to their cure. This method would save formal certification as "lunatics," and the odium and civil disqualifications connected with such certification. Scientifically, also, as many cases of acute mental disease are caused by temporary brain poisonings and nerve explosions, their nature differs in no essential way from many ordinary cases of acute bodily disease. They have to be studied in precisely the same way as ordinary diseases. Under proper treatment many of them come to a natural termination in recovery in a short time. The recent experience of mental hospitals is also in favour of such a plan. All of those had "Infirmary Wards" for the patients who needed a special bodily treatment and nursing. In the year 1881, at the Royal Edinburgh Asylum I set aside and re-constructed a special pavilion for those of my patients whose symptoms were such that they needed bodily nursing and medical care in an especial way, providing a specially trained and large staff, and I called this "The Hospital." This arrangement proved itself so much of a success that it has been imitated in almost every Scottish, and most of the English asylums, our Commissioners in Lunacy specially advocating the plan. I have no doubt that a few years now will see most of our great general hospitals provided with "psychiatric" wards for the treatment of such acute and short mental cases. This has been successfully done in America, Australia, and Denmark. The best example is to be seen in Glasgow. It has been erected by the Parish Council under the suggestion and guidance of Dr. Carswell. The Royal Infirmary, Edinburgh, has just arranged for an experiment on those lines.

There are now in the United Kingdom two hundred and sixty mental hospitals, many training schools, and two epileptic colonies. This does not include the

accommodation provided for the care and treatment of many hundreds of cases in the private homes of medical men, nor the houses in Scotland, where, under the licences and supervision of the Commissioners, nearly three thousand of the quiet and harmless of the manageable rate-paid class are inexpensively and well cared for. There are also in Scotland twelve poorhouses with specially licensed "Lunatic Wards," in which over seven hundred incurable and manageable cases are economically provided for, and there are twenty-three such in Ireland.

Provision for the education of defective children has been made in London and many large cities under the provisions of the Education Act. Special schools were built, staffed, and administered for "backward children" where special modes of education, physical treatment and training and feeding are adopted. There are usually received into such schools, in addition to the mentally defective, many of the class of cripples and epileptics, children with paralysis, retarded and distorted bodily development, and bodily deficiencies, the results of accident and surgical operations. It is, perhaps, too soon as yet to speak of the success from an educational point of view of those schools, but from the philanthropic point of view, and scientifically, as adopting a right classification, and getting such children separated from ordinary scholars, they cannot be too highly commended. The difficulty about their extension is that in country districts such children cannot be sent any distance to such schools.

The Supervision of the Defective Class.—I strongly agree with the first recommendation and conclusion of the Royal Commission of 1908, "That there be one central authority for the general protection and supervision of mentally defective persons and for the regulation of the provisions made for their accommodation and maintenance, care, treatment, education, training, and

control." I concur with this not only from the evidence brought before the Commissioners, but from my experience in treating and supervising this helpless class of the community. I think it is sound and necessary from the administrative, humanitarian, social, political, medical, and scientific points of view. I believe, if carried out, it would lead to great benefit to society and to the defectives. I consider that it would be the natural administrative evolution and result of the great but detached and sometimes overlapping work which has been done in the past by the Commissioners in Lunacy, Local Government Boards, educational authorities, criminal authorities, and philanthropists. Its adoption would be likely to lead to such an improved and extended knowledge of the causes of brain and mental defects, of the relation of the different forms of such defect to each other and of the proper treatment of each that, in time, effective preventive measures against their occurrence would gradually be devised, and so this burden on humanity would be lessened. The whole problem would come to be known better in fact, and therefore would be faced up in its entirety, which is not done now. In such a central authority as the Commission recommends every source of knowledge and administrative experience would naturally be represented—the legislature, law, medicine, science, philanthropy, and social reform.

CHAPTER XXXIII

UNSOUNDNESS OF MIND AS RELATED TO CRIME, AND AS AFFECTING CIVIL CAPACITY, AND CRIMINAL RESPONSIBILITY

THE law assumes that every citizen is responsible for his actions, and is able to manage his affairs until the contrary is proved. The chief causes of civil and criminal irresponsibility in grown persons are those arising out of unsoundness of mind. There are few things about which the British public is more sensitive than those relating to personal liberty, civil capacity, and the control of property. The scruples and suspicions of the public in regard to this subject are strongly reflected by the legal mind, by politicians, by the decisions of the Courts, and in the statutes of the realm. Very sufficient grounds and full proof must be adduced before irresponsibility and incapacity are allowed to stand in bar of punishment, or to authorize civil disqualification. Careful and minute provisions are made in regard to those matters, by about forty Acts of Parliament relating to unsoundness of mind. In old times men were punished for crime except the perpetrator was as clearly irresponsible as a "wild beast." The next epoch was made by the dictum of the whole of the twelve judges when Macnaughton assassinated the Prime Minister of the time. They laid it down that a knowledge of right and wrong in relation

to the crime committed should be the true legal test of responsibility. That somewhat metaphysical test was acted on for a time by the judges, but was gradually found to be impracticable and contrary to scientific fact. Suicide is legally a crime to be punished, but even the lawyers and the public realize that the majority of suicides are committed under the influence of mental unsoundness, and most of those who attempt to commit this "crime" are not punished, or regarded as criminals, though a large number of them know perfectly well that the act is "wrong." Many other varieties of crime, as was pointed out by the medical profession, are committed by persons who are partially, or wholly, unsound of mind, but who know that their criminal acts are wrong. Recently science and law have shown a marked tendency to run on the same lines when crime can be proved to be connected with "defective mental power, or by any disease affecting the mind which prevents control of conduct." Even with this definition of Stephen it is often difficult in individual cases to draw the line between disease and health, between responsibility and irresponsibility. Such are some of the "borderland" cases of which I have spoken where vice and mental unsoundness are mixed up; cases where the effects of alcohol on the brain come in, and cases of evanescent delirium and frenzy.

The law makes careful provision for the control of property, for its being applied for the benefit of the owners, and for its not being wasted, in persons who are unsound of mind. An elaborate legal process is provided for in England, and a more simple but efficient method in Scotland, for, in the first place, proving by the evidence of medical men and others that there exists mental incapacity sufficient to deprive a person of the power of managing his own affairs, and, if this is proved, for the appointment of a responsible "committee" or *Curator*

Bonis, who manage his property and apply it for his behoof.

There are few matters connected with unsoundness of mind that causes so much litigation as that of will-making. Vast sums are wasted in this country in such litigation, and decisions are sometimes arrived at that do not represent justice. The chief initial difficulty about coming to a just decision as to a will made by a man whose soundness of mind is questioned is that the testator is dead, that he was commonly not examined by a medical man of skill, when it was made, and that many members of the legal profession hold the opinion that they are obliged to make a will for anyone who asks them to do so, without reference to his sanity or insanity, the document standing for what it is worth, and that every man not proved in law unsound has an inherent right to do any civil act that any sane man can do. Many of them hold that to take medical opinion as to his mental capacity in the case of any intending testator would be frequently impracticable, and of itself would tend to throw a doubt on that capacity. I do not say that any lawyer of good standing would make a will for any client who was manifestly incoherent, delusional, or very weak-minded, without medical inquiry, but there are decisions of the Courts which point to the fact that mere senility of mind, mere paralysis accompanied by mental weakness, mere exhaustion from disease and approaching death, mere confusion from fever and drink, mere distraction by severe pain, mere facility and unresistiveness from prolonged weakness and disease—that those conditions do not necessarily disqualify a man from disposing of his affairs by will. Even insane delusion, if it has not directly affected the provisions of the will, nor suicide committed immediately after a will was made, do not invalidate the document. Then there is always "something to be said on the other side" in such cases, and there is a strong temptation to uphold or

contest a will by those who benefit under its provisions, or by those who imagine they have been unjustly excluded from their rights. It is becoming more recognized in recent times that impartial examination should be made into the testamentary capacity of intending testators, against whose testamentary capacity there exists any *prima facie* case, by competent persons, before the destination of large sums of money is irrevocably decided by a document that above all things needs soundness of judgment and a reasonable mental capacity and will-power, free from the domination of any interested person, or where there is any reasonable cause for doubt.

The validity of contracts, especially the great contract of marriage, wholly depends on the soundness of mind of each of the two persons entering into them, in fact, in every department of our complicated modern life, in every phase of our society, and in all our vast business arrangements, the question of unsoundness of mind may crop up and become a factor to be inquired into. I am not at all satisfied that our present modes of inquiry are the most efficient. No definite statutory provision exists that in all such cases impartial and skilled medical opinion is to be taken by the court as distinguished from that obtained by those interested in the decision. Many of us hold the opinion strongly that if there has been one or more attacks of mental unsoundness prior to marriage, and that fact has been wilfully concealed or denied, it should be a sufficient cause for a decree of nullity of marriage by the proper court.

CHAPTER XXXIV

CERTAIN GENERAL RELEVANT FACTS AND OBSERVATIONS ABOUT UNSOUNDNESS OF MIND

ITS NATURE—IS IT INCREASING?—CERTAIN NERVOUS DISEASES INCREASING—ARE ALL MEN MAD?—DOES MODERN EDUCATION INCREASE MENTAL UNSOUNDNESS?—NEURASTHENIA—THE PROBLEM OF SANITY—IMPORTANT DISCOVERIES IMMINENT—PREVENTIVE KNOWLEDGE—IMPORTANCE OF A RATIONAL VIEW—THE RESULT OF LAW-BREAKING—A HEALTH-CONSCIENCE—KNOWLEDGE *v.* WRONG HABITS—THE UNSOUND MOSTLY ILL IN BODY—DEATH-RATE—PROSPECTS OF RECOVERY—COST—UNSOUNDNESS PECULIAR TO MAN—THE FUTURE—SCIENCE WILL COME IN MORE

Its Nature

IT is now fully recognized that mental disease is scientifically in no way different from ordinary disease. It is a disease of a certain part of the brain, the cortex, which is the vehicle and instrument of mental action. The ideas of the public—the intelligent, and even the ignorant—are now undergoing a rapid change in the way unsoundness of mind is looked at. While this is the case, the strange, and, in many cases, growing intolerance of society to have in its midst anything disagreeable or abnormal, is shown by the fact that, sometimes, there is now a desire to hurry persons suffering from unsoundness into mental hospitals, when that

step is really unjustifiable, or at least injudicious, on account of the slightness or transient character of the symptoms present. Early treatment is now, by all competent medical men, recognized to be of the first importance for recovery, yet that treatment need not necessarily be carried out in a mental hospital if the means of the patient are sufficient to provide it otherwise.

Is it Increasing?—There is an almost universal idea that mental diseases are increasing of late years through the increased stress and excitement of our modern life. That opinion, in its present strength, is not warranted by facts. Taking those diseases as a whole it may be regarded as proved by statistics that of late years the proportion of patients who can pay for their maintenance in mental hospitals has not increased in proportion to the population. It is only the class which is paid for out of public funds that have increased so greatly. The apparent increase of deaths from "diseases of the nervous system" which appears in the Registrar's Returns may well be accounted for by improved diagnosis on the part of our younger medical men, who are far better educated in this subject than their predecessors. No doubt the inmates of mental hospitals have enormously increased, but there are very obvious reasons for this. Until recently there were no institutions in which a sufficient number could be treated; there were no "Lunacy Blue-Books," and the area of unsoundness of mind has been enormously enlarged by legislation and its effects. Every poor man affected in mind can now be properly treated free of cost to his relations. They are now treated with such care that they live much longer. The old prejudices against mental hospitals are slowly fading away. From my personal experience of forty-five years at the head of two mental hospitals, I can say definitely that cases are now sent there, whom their relatives and the public

authorities would never have dreamt of so treating fifty years ago. Idiots and congenital imbeciles were found in every village, taking their chance as "village fools" of living or dying under their hard conditions. The milder cases of depression of mind, whose mental unsoundness takes the form chiefly of a disturbance of feeling with comparative soundness in their intellectual condition, were not reckoned as insane at all, and therefore were not put under treatment in mental hospitals. Cases of paralysis, with the mental symptoms that nearly always accompany certain forms of that disease, were not reckoned insane, and therefore not sent to such hospitals. The whole class of senile defectives and dotards no one thought of reckoning fit inmates of mental hospitals. In fact, the standard of sanity is going up. Now there is not a county asylum whose wards are not largely peopled by such cases. A century ago there were few mental hospitals, and few facilities of treating the insane, now they abound, they are superb in their buildings and administration, with adequate staffs and available for every one. In fact, Lunacy Acts provide for severe penalities for neglect of those persons, and encourage public officials to place them under treatment. The general effect of all those things is, that while in England in 1861, according to the Reports of the Commissioners and Inspectors in Lunacy, there were only 39,152 persons known to be of unsound mind, those numbers not including the majority of the imbeciles and idiots, or one to every 512 of the population, now, according to the same Reports, there are 150,000, or one in 290. It is not to be wondered at that those figures produce the general impression that unsoundness of mind has markedly increased of late, or that there should be periodic scares in the public mind as the result of that belief. A careful scrutiny of the facts, however, shows that such impressions are fallacious to a large extent.

In primitive and uncivilized peoples insanity is much more rare than among the civilized races. At least that is the case if the imperfect information that is obtainable in regard to the disease among those more primitive peoples is correct. There are two chief sources of fallacy however in regard to this. One is that definite statistics are not obtainable, the other is that among such peoples every condition which markedly lessens fitness to earn a livelihood leads directly to the death of those who suffer from it, either by starvation, exposure, or some mode of putting to death by their fellows. It is well known that even among people of such development as many of the races of India, the women especially are put to death if they become insane. Among such peoples also idiots and marked examples of congenital imbeciles are either allowed to die by neglect or put to death.

It may be said, however, that a higher development of mind and brain implies a higher liability to unsoundness of mind, especially to those forms characterised by depression. As the brain cells become more and more evolved, and have higher mental work to do, they also become liable to upset in their mental functions. It is a certain distinction and proof of high development in any people to have acquired the capacity of being subject to typical insanity. I found from Dr. Warnock that melancholia did not exist in the Cairo Asylum, of over six hundred patients, in which the inmates were of the Arab and Coptic races. There was not a single patient who was suicidal during my visit. The chief single cause of the mental diseases among patients there was Indian hemp—hashish—just as alcohol is with us. As yet we have not discovered the laws of mental hygiene sufficiently to save some of the highest of our human minds from destruction. This is one of the penalties of evolution on wrong lines, and of an imperfect civilization. It must be one of the chief duties of scientific men in the

future to develop a more scientific sociology, a better power of adaptation to environments, and healthier physical conditions of life, so protecting the human brain from the terrible liability of the loss, or impairment of its highest functions. Against the causes of increase we must put the counter-acting conditions of our modern life. More persons are now in comfortable circumstances, the general health of the community is far better, the death-rate has gone down 50 per cent., and life is easier on the whole.

Certain Nervous Diseases Increasing.—It may be regarded as proved by statistics that while unsoundness of mind and nervous diseases in the mass are probably not increasing much, yet certain nervous diseases have increased of late, notably neurasthenia, spinal paralysis ("creeping palsy"), and especially general paralysis.

Are "All Men Mad"?—The common saying and belief that "all men are mad" in some way or other is a pernicious perversion of the truth. Only about one man in a hundred is "mad" in any correct or scientific sense, or even has in his brain constitution that instability which directly leads to mental unsoundness (Fig. 1. B, p. 23). The real meaning of the adage is, that all men fail in reaching the ideal in mind and conduct, and some have marked peculiarities, which is perfectly true. Dryden was quite right, in a sense, when he said that

> "Great wits are sure to madness near allied
> And thin partitions do their bounds divide."

But his couplet is constantly misunderstood and misapplied. The truth is that "great wits" are not always "allied" in essential kind to madness. But they are both apt to occur in the same family. A certain originality is common to both, but this assumes quite different forms in each. The sensitiveness of the poet is the same emotional quality as the supersensitiveness that often leads to melancholia. Real genius is necessarily the

highest sanity if the terms are rightly used, but, as a fact, many men of genius have had a sort of mad side to their character—Poe, for instance. I am not taking into account under this heading the four million tramps, natural paupers, and criminals, &c. (Fig. 1 A, p. 22), which have a sort of relationship to mental unsoundness.

Does Modern Education Increase Mental Unsoundness? —It is also commonly but mistakenly held that the higher modern education leads to more mental unsoundness. There never was a more perverted idea, if the word education is used in a proper sense. One of the highest aims of all education worth the name should be to promote the true sanity of mankind. If education leads to mental unsoundness it is a wrong education. Education should aim to develop all the faculties of body and mind, to eliminate weak points, to promote health in the best sense, to prolong and make happy the lives of men, and to increase and strengthen the sanity of mankind. We have as yet no facts to go on as to whether the compulsory school education of recent years has increased or diminished the mental unsoundness of the land.

Knowledge is, or should be, health, and a scientific comprehension of mental symptoms, great and small, with a realization of their true meaning, must necessarily be the first step towards the prevention of mental unsoundness. Mental hygiene must, in fact, be the foundation of future mental soundness, and it should form a part of all right education. Knowledge should apply especially to the family histories of those likely to be affected by mental unsoundness. Too much importance cannot be attached to a knowledge of the developmental and educational periods of life. If bad hereditary tendencies are to be modified and influenced for good, that undoubtedly is the period when this is possible. The brain is then in the making, and the tyranny of its organization is not absolute and inevitable.

Neurasthenia.—The condition of neurasthenia, sometimes seen among our highly educated young women, is one of the conditions with which are frequently associated mild mental symptoms. Few cases of neurasthenia indeed but have some alteration in their mental condition, either in the way of lethargy, incapacity to do work, irritability or depression. The typical neurasthenic has usually lost her initiative and will-power to a considerable extent. She is, in fact, often on the borderland. But neurasthenia is mostly the result of wrong ways of living and education and not necessarily of bad heredity. It scarcely exists among our healthily reared young country women, and if men and women lived as they should do would scarcely exist at all.

The Problem of Sanity a Far-reaching One. The Word "Sane" as Used Now.—The problem of mental unsoundness, when looked at from a scientific, sociological, and philosophical point of view, is an extraordinary complicated and far-reaching one. It affects the individual, the family, society in many direct and indirect ways, and the State. I do not believe that its real relationships and importance have as yet been fully realized by sociologists and statesmen. The manifestations of its minor and less obvious forms, the light which its hereditary relationships throw on human conduct, the subtle ways in which emotion and conduct may be affected by abnormal brain organization, not amounting to disease, are subjects of the most extraordinary interest. The goodness or badness, the efficiency or uselessness of any man or woman's life largely depend on brain quality. The best inheritance which any human being can possess, and the one to be most thankful for, is a good brain heredity. The worst is a liability to unsoundness of mind. No student of biography or history, of literature or art, who has any competent knowledge of brain working or heredity can fail to see how the same causes have often produced entirely different results on different men, and,

through them, on society, according to the quality and stability of brain they possessed. The course of human history has often been visibly affected thereby. Russia has been certainly retarded in its development by her insane emperors. It would seem to be one of the great needs of the critic of the future that he should have the knowledge to distinguish the normal from the morbid reactions of the brain in the case of the great men whose ideas or actions have influenced the world's history. It is fortunate that the modern biographer, if competent, now commonly begins his tale, not with the life of his subject, but of his ancestry and their characteristics.[1] Flaws in heredity usually mean defects and unreliability in men and women. Had the world fully comprehended this principle in the case of Rousseau, for instance, his dicta and theories would not have influenced his generation and the following one as it did. Of late years the importance of this knowledge seems to have really got hold of our newspaper and book-writers. I notice that the word "sane" is being everywhere used as the highest compliment that can be paid to any man's life, his work, and especially his literary work. The word is used now ten times for every time it was employed thirty years ago. It has come to mean that his work is to be trusted and that his judgment is reliable. Technical unsoundness of mind may, in some respects, be regarded as the acme and the caricature of the follies that more or less pertain to all men, and the elimination of the "fool" has been the aim of all practical philosophy and religion. No better illustration can be found of the trend of thoughtful minds in the present day on this subject than Mr. Walter Bagehot's *Physics and Politics* affords. His careful studies of what constitutes a powerful and a stable people, and his conclusions as to the part which inheritance plays

[1] *Vide* Carlyle's *Frederick the Great*, where the whole of vol. i. is devoted to the great king's ancestry and relations.

in this process, are strongly confirmatory of my contentions as to the supreme importance of brain stability and good heredity in the world's history.

Important Discoveries Imminent.—There are indications that we are on the eve of important and far-reaching generalizations in regard to the relationship of mind and brain and the causes of mental unsoundness. Many workers in many countries are accumulating facts on the subject, and it seems as if the time was waiting for the Newton or the Darwin of brain psychology.

Preventive Knowledge.—The great aim of modern medicine being to prevent rather than cure disease, we need rules for growing up and growing old. We need especially more accurate knowledge as to whether certain symptoms are the indications of a mere temporary disturbance that needs a rest or purgative, or that are the prelude, if neglected, to a serious brain breakdown.

Importance of a Rational View.—Even with the imperfect knowledge we now possess it is most important that a rational view of mental and nervous symptoms should always be taken. They should have nothing of the mysterious dread of the unknown. They should not be regarded as a thing to be hidden away or as a disgrace to be ashamed of. They may be the cause of disagreeable conduct and even immorality, but those ethical results from such a brain cause should be severely distinguished from those which are of purely mental and moral origin.

The Result of Law-Breaking. A Health-Conscience.—Mental unsoundness should be looked at, not as an isolated fact in the history of mankind, but as one of the results of natural law-breaking—sometimes wilful, but more frequently through ignorance or want of the means of healthful living—on the part of the former generations of mankind. If one-tenth of the thought and one-twentieth of the effort that has been wasted on

political discussion and on unhealthful amusements were for a few generations given to health knowledge and the upbuilding of a "Health-Conscience"[1] among mankind, we might make more progress. We need a genius and a few fiery enthusiasts to compel the attention of men and women to such questions. Humanity as a rule is not yet altruistic enough to care much for the welfare of future generations. The cynic who asked "What have future generations done for me?" accurately represents the present mood of a large part of mankind. To have seen Education Bills with no clauses for the teaching of health to our children, and an educational system that neglected the formation of self-control, character, and manners, are proofs of this thesis. To observe the way marriages are often arranged is almost to lose hope for the future of our race.

Knowledge v. *Wrong Habits.*—The dangers of the abuse of alcohol, of opium, and of many drugs which tend to form a drug habit, would, I believe, be greatly minimized if there was a correct knowledge among the public as to their real risks. Their use is often now begun from sheer ignorance of their effects on the brain. A knowledge of one's own constitution and heredity would keep the neurotic and nervously unstable from touching such things at all, except under medical orders. The Socratic maxim of "Know thyself" applies all along the line in the prevention of nervous and mental disease and the avoidance of their causes.

The Unsound of Mind on the whole Bodily Weak or Ill.—The relationship of mental unsoundness to bodily disease, to conditions of bodily weakness, exhaustion, and non-restiveness is vividly brought out by the fact that out of fifteen thousand patients who suffered from it that have been under my care, only 10 per cent. were put down as being "in good bodily health."

[1] "How a Health-Conscience might be Developed," *British Medical Journal*, 11 July, 1905, by the Author.

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The Rate at which the Mentally Unsound Die, and what they Die of.—The best proof that unsoundness of mind is, speaking generally, a disease, and a deadly one, is the fact that the deaths in the Royal Edinburgh Mental Hospital, which treats patients in all classes of society, was, during the thirty years 1874–1903, about one hundred per thousand living, or about eight times the death-rate among the general population. When it is considered that the mortality rate among our people is by far the highest in the first year of life—one hundred and thirty children die in that year of every thousand born—and the unsound of mind are mostly over fifteen years of age, the fatality of the disease is more fully realized. The most frequent causes of death by far were "Diseases of the Nervous System," which means of the brain chiefly, those amounting to 60 per cent. of all the deaths, as compared with 8 per cent. in the general population. This, in fact, accounts for the greater part of the high death-rate among the unsound. General paralysis accounted for 23 per cent. of the sixty. Tubercular disease, which took the form chiefly of lung consumption, accounted for 15 per cent. of the total deaths, this being about the rate among the general population thirty years ago. As, however, the majority of the mental hospital population are over thirty years of age, and the chief tubercular death-rate is found among the general population below that age, it seems clear that the unsound in mind, especially when they become incurable, are specially liable to the fatal infection of the tubercle bacillus. It seems, however, that if an absolutely favourable environment is provided, in a non-infected mental hospital, consumption may be completely eradicated. At least the experience of the first fourteen years of Craig House Mental Hospital, with two hundred inmates and no tubercular disease at all, seems to point to that conclusion.

The Prospects of Recovery.—Looking merely at the un-

sound who are sent to mental hospitals, they recover at about the rate of forty in every hundred sent to those institutions, a rate which compares with general hospitals. Half of those recovered are, however, subject to relapses, which compares with rheumatism, gout, or bronchitis. But if the minor degrees of mental unsoundness, not needing hospital treatment, are included, and pure senile breakdown, epilepsy, and general paralysis are excluded, then my experience is that 70 per cent. recover. This fact puts mental unsoundness in the category of the most curable of diseases.

Cost.—At the present time over £4,500,000 is spent yearly in Great Britain out of the public funds in the care and treatment of mental unsoundness. This enormous sum is one phase of the philanthropy and the knowledge of modern times in regard to only one of the diseases to which humanity is subject. It is a strong concrete proof of the education which the State and the public have undergone as to the pitifulness of mental disease, if not to the importance of mental health, during the last sixty years.

Unsoundness of Mind Peculiar to Man.—Unsoundness of mind has this marked distinction from the vast majority of other diseases—it may be said to be peculiar to man and not to affect the lower animals. No doubt there is liable to come on in any species of them a process of senile decay, when their mental functions lose their sharp edge, when mental and bodily activity is lessened, when the food-providing instincts become dull, when memory and imitativeness diminish, and when the special instincts of the animal lose their acuteness. Certain animals are also liable, but this very rarely, to a sort of delirious condition, losing the effects of their education, and with their normal condition decidedly changed. Rabies in dogs and other animals is always attended with a mental and instinctive change. Certain poisons also will produce a pseudo-insanity in animals.

The Future. Science will come in.—The next great era will consist in an extended knowledge of the nature of the disease and a greater certainty as to the means of its cure, more precision in applying the means for its prevention, and, above all, measures of restriction for its propagation through the extension of the new science of Eugenics. During my own professional life our knowledge of the nature and pathology of many forms of mental disease has greatly increased. Microscopic research, clinical study, psychological analysis, bacteriological investigation have done much to throw light on this mysterious malady. Workers in the department have come to realize, as they certainly did not do fifty years ago, that the methods of general pathology are applicable to mental pathology, and that there must be a solidarity in the methods of study of all diseases. The problems of mental unsoundness have an interest and even a fascination all their own. There are now ten scientific workers in this field for one that studied it thirty-five years ago. Germany, perhaps, heads the list on account of the thoroughness and system she has adopted, as is her wont, in all her educational methods. She spends more money on opportunities for clinical study and has many more workers than any other country, but Great Britain, America, France, Russia, and Italy have taken up the work vigorously. In this country the real importance of supporting and encouraging our workers in psychiatry is not fully realized. In Scotland, for instance, the public mental hospitals contribute only about £1,000 a year to the support of the combined laboratories and two successful, enthusiastic, and overworked pathologists, when £2,000 a year would be more like the sum really required. In addition to this combined effort, however, the four greatest mental hospitals in Scotland are making large individual efforts to study more thoroughly the nature of this disease. The

London County Council and many of the English Asylum Committees are doing magnificent work in the same direction. How science can benefit life is surely the greatest practical problem of modern civilization. How medical science can strengthen and increase sanity forms a large section of the larger problem.

CHAPTER XXXV

THE TRAGEDY OF MENTAL UNSOUNDNESS

THE history of mental unsoundness has been one long tragedy, relieved by splendid gleams now and then of human sympathy and effort. That the condition occurred in the barbarous ages of mankind is certain, and it was then, as it is now, among the unevolved races, treated by summary measures for its extinction. The idiotic and the insane were either put to death or allowed to die for want of help. In Egypt, Greece, and Rome the great physicians of the time alone regarded it in its true light as a brain disease or defect, and treatment, more or less rational, was advocated by some of them. The mental pathology of the New Testament and of the early ages of Christianity was founded on the idea that the disease was a possession of the devil, and the feeling towards this afflicted class of human beings was naturally that of repulsion and hatred, their treatment following on those lines. Neglect, the whip, chains, confinement in stone cells, starvation, unsuitable medical treatment, speedy death were the natural results. Some of the religious orders in the Middle Ages made some provision of a kind, for their custody rather than for their treatment. Society wanted to keep the disagreeable and dangerous thing out of sight, and therefore "madhouses" were instituted as the Dark Ages passed away. It is due to Mohammedanism and Buddhism to say that their misconception

as to the mentally unsound being specially favoured of the Almighty secured a tolerant and almost sympathetic regard. They were allowed to wander about without positive ill-treatment. Yet in Damascus in 1896 I saw a perfect example of what our asylums were two hundred years ago—stone cells six feet by six, fetters, neglect, and filth.

In the end of the eighteenth century there was a fortunate combination of medical ideas and "Liberty" in France and philanthropic impulses in England, which, for the first time in the world's history, secured right treatment, kindness, and public interest of a sympathetic kind for the mentally unsound. Dr. Pinel, in the throes of the French Revolution in Paris, and Mr. William Tuke, of York, as one practical effect of that form of Christianity practised by the Society of Friends, have the imperishable honour of rescuing the most helpless of mankind from a living death. The Bicetre in Paris and the "Retreat" in York were the first of the thousands of mental hospitals and homes for the feeble-minded that now exist in the world. To Lord Shaftesbury in England is due the credit of the modern statutes under which provision is made in Great Britain for the care and treatment of the mentally unsound. It cannot be said that the money spent and the efforts made to cure and care for this class were quite ungrudged on the part of the public, but it was done, and on such a magnificent scale that it largely redeems the previous neglect. No doubt errors were made, misconceptions were perpetrated in stone and lime, and mal-administration was carried out to some extent, but that is merely to say that the efforts were experimental, that scientific knowledge was incomplete, and that the men who did the work were human. Up to this time the last legislative effort to acquire the latest knowledge on this subject and to embody it in practical recommendations has been the appointment of the Royal Commission on the Care and

Control of the Feeble-minded and Insane, to which I have referred, which, after four years of exhaustive inquiry, has in 1908 brought out the eight volumes with the wide-reaching recommendations for the consideration of Parliament and the public that appear in volume viii.

Since the time of the Egyptian Priest-Physicians, and especially of Hippocrates, the "father of medicine," science has devoted itself, at long intervals, to the question of mental disease and defect. It rightly connected the condition with faults in the working of the human brain, although in the Middle Ages the purely spiritual and mental nature of the symptoms were believed in by most of the doctors. Since medicine became imbued with the spirit of modern science, however, no doubts have been entertained that mental deficiency and mental disorder must be referred to the brain as their vehicle and cause. A definite department of medicine, that of "Psychiatry," has been created, and has done, and is doing, the work of investigation, of clinical study, of experiment, and of recording results. Workers in this field, in all countries, have been active; they have called in the aid of anatomy, physiology, psychology, bacteriology, and pathology. Progress has been slow but sure. The workers realize that it is the most difficult of all departments of scientific medicine, because the connection of mind and body is by far the most obscure question science has to elucidate. In one sense psychiatry is necessarily the highest branch of medicine inasmuch as the mind is the highest thing in the world, and its vehicle in the human brain is the last product of Evolution, and is the most complicated and delicate piece of living machinery in the world both in structure and working. But no one can doubt, who believes in modern science, that it will ultimately triumph over all those difficulties and will secure for humanity a definite knowledge of mental disease and defect, with means for its cure and prevention. Along

with this will certainly come, even if slowly, the extinction of the old feelings—repulsion, fear, and neglect—which have been attached to all forms of mental weakness and disturbance. Even the scorn and the ridicule which it excites, and that are even now so common, I expect to die out. The scientific interest of the whole problem and its practical importance must in time swallow up those unworthy feelings. But even when this happy consummation has been attained, mental unsoundness will remain the saddest and the most feared of all human afflictions. When reason is dethroned and self-control lost man is instinctively felt to have sunk far below his destiny in mind and spirit. He has lost his place in creation; many of his fellows, even his nearest and dearest, will shun and dread him. It will always need the highest of the human virtues to deal rightly with it—patience, forbearance, skill, tact, knowledge, and love. Dr. Mercier has lately made a most eloquent and moving application of St. Paul's chapter to the Corinthians on love in addressing the nursing staff of the "Retreat" at York. I have, in my experience, frequently seen all the exhortations in that sublime chapter in full exercise in real life by relatives and strangers to the sufferers. Perverted feeling requited by loving care, irresponsive mindlessness idealized into helplessness that evoked unceasing attention, social intercourse given up and family life destroyed, for the sake of an incurable invalid, public position resigned for the same reason—all these and more I have seen. The most tender and touching devotion and self-denial that is possible for good men and women to exercise I have witnessed lavished on mental invalids who were entirely incapable of gratitude or love in return. The tragedy of human life and its tenderness thus finds some of its most pathetic examples in connection with mental unsoundness.

CHAPTER XXXVI

EDUCATION, CHOICE OF OCCUPATION, SOCIAL SURROUNDINGS, MARRIAGE AND DIVORCE, IN RELATION TO UNSOUNDNESS OF MIND

EDUCATION

FIFTY years ago most theories of education took into account the mental powers alone, and almost entirely disregarded the brain and the body and their heredity. Most fortunately for the race, theories of education have widened so as to include, more or less, those factors. Any true theory of education should be founded on the aims to bring the whole organism to such perfection as it is capable of, to train the brain powers in accordance with their innate capacities, and most carefully to avoid the over-straining of any power or faculty. To do this, weak points must be studied, and the whole educative process must be made conducive to general organic health. Nature's laws must be followed and not contravened; hygienic indications must be carried out and the ultimate aim of a strong race, as well as an effective individual, ever kept in mind. There is no time nor place of organic repentance provided by Nature for some of the sins of the schoolmaster.

Some educationalists go on the theory that there is an unlimited capacity in every individual brain and mind for education to any extent and in any direction. Nothing

is more certain than that every brain has at starting just a certain potentiality for education, and that it is far better not to exhaust that potentiality or even go near the point of exhaustion. If energy is unduly or for too long put forth in the mental medium in the brain or in any part of that organ, it tends to depress or withdraw the energy from other portions. The great law of the solidarity of working of the whole brain and of the whole body must ever be kept in mind. No competent engineer sets his safety-valve just at the point above which the boiler will burst, and no good architect puts weight on his beam just up to the calculation above which it will break. Nature generally provides a large reserve power in every direction in a perfectly healthy man or woman, but in our modern civilized life, among an educated community, this reserve is often small in certain directions. Those and other physiological facts should be taken into consideration in the theory and practice of education. The periods of puberty and adolescence are attended with special dangers. The capability of women for healthy maternity and the reproduction of future generations, strong mentally and physically, should be a cardinal point in all educational theories and practice in the case of girls. The race must not be forgotten in the treatment of the individual.

Wherever there exists anything like a strong or a marked nervous heredity the fact should be kept in view in education. That process where such a condition exists should be carried out on stringent physiological and hygienic lines, and the doctor's advice should be taken as to its details. The new statute for the medical inspection of schools will gradually develop a section of the medical profession with special knowledge and experience on this point. As I have already pointed out, the physical evidences of a nervous temperament and the stigmata of nervous degeneration are not very difficult to find if they exist, but they must be looked for. Few

things are found if not sought. When present their significance must be specially taken into account.

Children of a nervous proclivity should if possible be brought up in the country. They should have a special amount of fresh air; their diet should be abundant but non-stimulating: milk, cereals, and fats forming the greater part of it. They should not be subjected to too much mental or bodily excitement. They should have well-ventilated class-rooms; their school hours and their time should be systematized. They should be kept as fat as possible, one and all. Alcohol in any shape or form should be tabooed; the development of control should be the chief aim in their education. Many of them, where the nervous tendency is very marked, cannot be safely sent to ordinary schools without, at all events, special precautions being taken. I have seen markedly good results through placing very nervous children in a quiet family in the country under motherly care with special guidance, very individualized attention, and away from much temptation.

Choice of Work.—There is always a temptation to put a bright, neurotic boy or girl who is active mentally, receptive, sympathetic, and ambitious into professional or other head-work. I do not for a moment say that this is always contra-indicated. It all depends on whether the brain is working normally or is hyper-active; but I say that this question should be faced and most carefully considered before the life-work of such young people is finally determined on. If the nervous tendency exists among near relations, or is exhibited in the individual, an occupation implying an outdoor life, or one where there is a good deal of non-exciting routine or where temptations are at a minimum, should be selected. It would, of course, be ridiculous not to allow those with the artistic temperament to follow their bent. Such a temperament, however, is apt to go with lack of control and staying power, lack of system and order in life. It would usually do no harm to the artistic powers to adopt certain precautionary and

anti-neurotic modes of life during the development of such persons. In the long run their art would be more virile thereby and less apt to be pathological. As in regard to modes of education, so in the selection of occupations for life, the doctor may very well be consulted. I am well aware that science has not reached that point yet when we have definite indications to guide us in every case; but how much more effectively the world's work would be done, how many wasted lives would be saved, and how much unhappiness would be avoided if we could put every young man and woman just into the groove for which they are fitted! "Go back to Nature and Mother Earth" should be the motto for many of the nervous, the thin, and the hyperæsthetic.

Social Surroundings.—Few people have a complete choice in their social surroundings, but where such a choice is possible to the neurotic, to the slightly defective in mind, or to those subject to mental unsoundness it should follow the lines of protection from temptations and freedom from undue work, causes of irritation and excitement. It is a truism that the social atmosphere in which any man or woman grows up has a marked effect on the religious, emotional, and intellectual condition. Religionists of every kind found this out very early in the history of the race. Social isolation from persons of different religious beliefs and practices has been the evil custom of the intenser forms of religion from the Egyptian Priests downwards. In regard to the neurotic, instead of associating with persons of the same temperament and weaknesses, they should sedulously cultivate the society of the calm, the phlegmatic, and the stoic. Above all, cheerfulness should prevail in their social atmosphere. In many cases the neurotic tend to associate with the neurotic, and many of them resent and despise their more stable-minded fellow-creatures. The preventive, and even the mentally healing, influence of the right sort of nurse, or companion, or guardian on a neurotic child or a ner-

vously excitable adult is a very well-known fact to all physicians. To get the right sort of companionship for a patient threatened with a mental attack is in many cases by far the best medicine. I do not say that the nervous should be cut off from rational amusements and pleasant, interesting society. As a matter of fact, many of them would not tolerate this, and it would be bad for them. Many of them require to be taken out of themselves, to be drawn in to taking an interest in the objective rather than in their own subjective feelings, and they find unusual pleasure in suitable social surroundings. The life-history of thousands of men might have been entirely different if their social atmosphere from the age of sixteen to thirty had been suitable to their brain constitution.

Marriage.—From the earliest times of civilization the importance of marrying into the "right stock" has been more or less realized. Royal and aristocratic families among most peoples, except the Turks, took infinite pains in mating to secure "true blue" blood, but it is only of late years, since the study of heredity has become a part of science, that what may be called marriage on scientific principles has attracted much attention. Plato's ideal Republic and his theories of marriage never took any practical shape. The present scientific views on the subject are making large numbers of young men and young women, as well as their parents and guardians, ask the question, "What risk will there be to posterity if certain marriages are contracted, and how best make the selection of partners so as to diminish the possible risks?" Doctors are now consulted on this question scores of times for every once they were consulted fifty years ago. The science of Eugenics, as taught by Galton and his followers, depends chiefly for any practical result on the selection of suitable partners in life on the part of both sexes.

Looking to unsoundness of mind in its relation to marriage, it is certain that no disease and no tendency

to any other disease should be more inquired into before marriages are arranged than if either of the parties have had a mental attack. I would without hesitation lay down the absolute rule that very few persons who have had an attack of unsoundness of mind should marry at all during the child-bearing age. I would further say that no one, without any exception, should marry who has had such an attack before the age of twenty-five. Further, no epileptic who has become subject to the disease before twenty-five should marry. In the exceptional cases, where marriage may be contracted after a mild attack of unsoundness of mind, it should not take place until five years after the attack. No person who suffers from mental enfeeblement in any degree should contract marriage.

Passing to those persons who had not had actual attacks of mental unsoundness, but who by family inheritance are deeply tainted with the disease, no definite rules as to marriage can, in the present state of knowledge, be laid down. It largely depends on the constitution and the clear bodily and mental evidences of a nervous organization. If there has been a direct heredity from the maternal or the paternal side, and if there are definite evidences of a nervous organization, it is then always a question whether marriage should be contracted. The maternal heredity is much the most important. Dr. Mott brings incontestable evidence of this.[1] If such persons marry it should not be too early in life, and their partners should be of the phlegmatic, healthy, well-nourished, stable-minded type with a good heredity. Short acute attacks of mental unsoundness after child-birth, being commonly the effect of temporary blood-poisoning, do not necessarily debar subsequent marriage or the birth of more children. Hysterical attacks in young women, though proof of

[1] Dr. Mott on "Hereditary Aspects of Nervous and Mental Diseases," *British Medical Journal*, 8 October, 1910.

a neurotic disposition, do not necessarily debar marriage. A strong family tendency to consumption is so often associated with the presence of mental or grave nervous disease in some of the relations that marriage should be carefully considered before being contracted in such cases. An isolated case of senile unsoundness of mind in a family does not raise the question of no marriage; it may have resulted from disease of the brain arteries, that not being a hereditary disease, or it may be a "sport" or a "variation" that may occur in any family. The occurrence of general paralysis in any family scarcely affects the marriage question.

The solution of the question whether marriage should be carried out or not should depend more on the general nervous history of the two families than on any isolated case of mental unsoundness having occurred in either of them. There can be no doubt that portions of bad protoplasm and tendencies to bad kinds of nervous disease can be carried through many generations as merely potentialities, not appearing as actual facts at all. Science has scarcely any suggestions to make in regard to such a difficult and obscure problem as the marriage of members of families where this has occurred. Dr. Savage[1] has lately published a thoughtful paper with many practical and useful suggestions as the result of his large experience.

In regard to the question of the marriage of those predisposed in any way to grave nervous disease, it should certainly not be solved by the two interested parties alone without calm consideration and advice by relations, and, in many cases, after consultation with a wise family physician.

Divorce.—The important question of whether British law should be so altered as to permit divorce when wife or husband is incurably insane is now being considered by a Royal Commission. After giving this grave matter my most serious consideration, and applying to its solu-

[1] *British Medical Journal*, 29 October, 1910.

tion my experience of having had the care of fifteen thousand cases of unsoundness of mind of all kinds in every condition of society, I have come to the conclusion that a change in our present law should be made, and gave evidence to that effect before the Commission.[1] My reasons for this are the extreme hardships that occur to the sane husbands and wives, the temptation to immoral lives, the great disadvantages and dangers to children, and especially the risks in regard to the propagation of stocks with strong tendencies to unsoundness of mind. I think divorce should be possible after the most careful judicial inquiry, and after the evidence of more than one medical man of experience has been taken, and after incurable unsoundness is proved to have continuously existed for five years or over. The chief forms of mental unsoundness to which divorce should apply are Secondary Dementia, Epileptic Unsoundness, certain forms of Alcoholic Unsoundness, General Paralysis, all forms of Congenital Enfeeblement, cases with fixed delusions, cases of *Folie Circulaire*, and those with certain gross organic brain diseases in which the mental symptoms are the chief features. Most of those are already dead in mind, and divorce would not further injure their mental condition, while in by far the larger proportion of them the affection of their partners is also dead. I estimate that there are in the United Kingdom at least 41,000 married persons who would come under those headings. But I also think that in only a few of them would applications be likely to be made for divorce. The question of whether the patients had brought on their disease by their own acts, conduct, or course of life might come in as an element in the evidence and in the decisions. Whether former attacks of mental disease should be a ground for divorce if they were concealed before marriage is a question in regard to which doubts might exist, but I think that should be also a ground for divorce.

[1] *British Medical Journal*, 5 November, 1910.

CHAPTER XXXVII

THE HYGIENE OF MIND

THE SANE IDEAL—HOW MANY MIGHT HAVE ESCAPED?—NO "CAUSE" TO BE FOUND IN MANY CASES—CAN BAD HEREDITY BE ANTAGONIZED AND FINALLY ERADICATED?—GIVE EVERY MAN THE BENEFIT OF THE DOUBT

The Sane Ideal

IT is a common idea, but a mistaken one, that most cases of active unsoundness of mind have resulted from some voluntary and conscious violation of the laws of Nature or health on the part of the individuals affected—in fact, it was their own fault. Looking at the statistics of large numbers of persons of all classes of life, who have been so ill mentally as to require treatment in a mental hospital, I find that only about 37 per cent., at the very utmost, resulted from causes that could be said to have been under the control of the patients. No doubt many persons would not become unsound of mind, who now do so, if their education, physiological and moral, had been better attended to, and if they had in their lives practised the laws of mental hygiene. If they had all carried out the old Greek maxim of "Know thyself" this would have had much effect in diminishing their nervous troubles; but it is a very different thing to know and to obey the laws of Nature. My experience has been that a very large number of persons born with tendencies towards mental and nervous unsoundness are

peculiarly apt to subject their brains to such treatment as is most directly calculated to bring those tendencies out, and to make them realities. The power of self-control is the quality in which such persons are usually most deficient, and where you have lack of self-control mere knowledge is often of no avail. Extraordinarily striking examples of this are often seen in the children and grandchildren of persons of unsound mind and of drunkards. If we take into account the loss of efficiency in doing life-work, the eccentricities and peculiarities which handicap many persons who have imperfect reaction or over-reactiveness to social stimuli—if we look at these things and try and estimate the extent to which they are caused by the lurking hereditary seeds of mental unsoundness, we find that individuals and society are weakened by this means in a way that no statistics bring out. The idea that most people are responsible for their mental and social peculiarities is an exceedingly cruel one. It leads to all uncharity in the highest degree. I believe there is no set of men who are disposed to make more allowances for the peculiarities, and even the sins, of certain of their fellow-creatures than physicians who have made mental unsoundness and its hereditary relations their special study.

When thus referring to persons with mental weaknesses and peculiarities not amounting to actual unsoundness of mind, I am not to be understood as meaning that for the world's work we need ideal and faultless brains and minds. That would be a counsel of perfection which obviously would not fit the facts.

Even if we look at the highest effort of Nature which we call genius and its capacity for the elevation, the advancement, and the delight of the world, she seems not to have been able to do so without often treading perilously near the confines of the morbid. It appears as if it would need the application of a higher law of evolution to combine perfect sanity with genius in the

same man and in the same family. It is quite clear that human nature at present longs for such a combination, and realizes of what infinite value it would be to the world. The hold which the modern mind is getting of the value of soundness of mind must tend towards the sanity of the race. This idea seems peculiarly common in the Teutonic nations. Any people with this "sane ideal" must be in a safer condition politically, socially, and artistically than one that does not possess it. The universal appreciation of Shakespeare's genius is no doubt partly the result of a realization of his absolute sanity.

How many might have escaped?—It is a profoundly interesting and a most important question in regard to mental unsoundness to ask how many persons might have altogether escaped the disease by living according to moral and physiological law, by avoiding its causes, and by an early attention to the danger-signals which Nature usually holds up before a real attack comes on. Even a bad heredity and a distinct tendency towards disease may exist, and yet never develop into an actual unsoundness of mind. Taking society generally, fewer people ought to pass into unsoundness of mind, if their lives and environments were what they ought to be. Heredity in many cases is only a potentiality which may lie perfectly hidden, and I believe could often be got rid of in the course of several generations if the right hygienic and preventive means were adopted. Few of us can show a clean bill of heredity; but yet many of us escape the fate that lies in our organisms by means of knowledge of ourselves, the application of common-sense rules, and by taking things in time.

No Cause to be Found Sometimes—There are many cases of mental disease in whom we are as yet not able to find out or assign any cause at all, whether from without or within. We know that a cause must have existed, but it was so little evident as not to come within

the reach of even careful investigation. Those persons simply passed from a condition of sanity into insanity, and not much more could be said about them. They were usually slow and gradual in the development of their unsoundness; they exhibited sane and well-balanced minds up to a certain period, and then slowly and apparently without reason became unsound in mind. They were not in the early stages of life when wrong development could be said to come in, or in the last stages of life when decadence and old age might have explained their condition. It seemed as though a fate were laid on them from which they could not escape. Their brains took on a wrong mode of working, that was all. This largely results from our present comparative ignorance of the brain and mind and of the laws of heredity. Perhaps the wonder is that in a condition of a highly complicated and artificial civilization more human brains do not fail to adapt themselves to such an environment. Sanity may be said to consist in the power to adapt life to environment, and that power does not exist in many men and women.

Can Bad Heredity be Counteracted and finally Eradicated?—The effect of the observation of the relation of mental unsoundness to evil heredity is often very pessimistic on one's own mind. The impression frequently is that if this class of diseases and defects are mostly hereditary, and if Weissman and his school are right about the persistence of hereditary defects and degenerations, in spite of favourable environments, it is impossible to do anything, except to wait patiently till Nature in her efforts to attain the ideal slowly drops the unfit out of the cycle of life. It is one's duty to strive earnestly to look on the optimistic side of this question. Galton, with his new science of Eugenics, helps us greatly. His is an intensely scientific mind, and he ardently believes that much can be done by applying human reason and scientific knowledge in

the mating of men and women, and otherwise, in spite of Nature's lower sexual affinities and mere emotional drawings.[1] Then we must ever try to remember that there are many forms of degeneration which are manifestly due to bad environment, especially those acting during the developmental period of life. Yet we sometimes cannot tell which diseases and defects are hereditary and which are environmental. The favourable effects of some reformatory schools and of the boarding out, under the care of suitable guardians, on the children of criminals, paupers, and the "submerged tenth," is a fact that should never be lost sight of. The improvements in the mental and social condition of such races as the Maoris in New Zealand, the changes in the whole nature of domesticated animals as contrasted with their wild ancestry, the general tendency of the fit to survive, and the unfit to die out, and the recent conclusions of many competent modern scientists that environmental influences really can and do influence and modify heritable characteristics—all these things are incentives to hope and to efforts towards the ultimate diminution of the mental defects that at present so heavily handicap humanity. De Vries' and Mendel's work too seems, when carefully looked at by the psychiatrist, to point in an optimistic direction.

Give Every Patient the Benefit of the Doubt.—It is so terrible a thing to pass a death sentence on any individual or a class, that medical scientists should, with all their might, resist the tendency to do so, except when they are reasonably sure of their facts. Fatalism may be tolerated as a form of philosophy, it should be banned as a part of modern medicine, more especially in mental and nervous medicine. The "Hygiene of Mind,"[2] having been the subject of another volume of this series, I shall not further enlarge on this preventive aspect of mental unsoundness.

[1] *Essays in Eugenics*, by Sir Francis Galton.
[2] *The Hygiene of Mind*, by the Author.

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